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ABSTRACT

Included in the transcript of this semiannual meeting of the Association of Research Libraries (ARL) are the following: (1) papers by Sharon Hogan on the definition of data in an online environment, by John Black on ways of communicating data, and by Peter Wolters on data sharing and library networking in the United States and Canada; (2) a record of the discussion following these presentations; (3) papers by Russell Shank and Nancy Brown on the implications of the online environment for academic institutions and academic libraries respectively; and (4) a transcript of reactions to the day's presentations by Joseph Rosenthal, Alan MacDonald, and Stuart Forth. Ten reports from the ARL business meeting are also presented. Appendices comprise a description of the iNet Gateway Trial by Cynthia Durance; background papers on library networks, including "Library Networks: The Canadian Experience," by Basil Stuart-Stubbs, "The Research Libraries Group's (RLG) Research Libraries Information Network (RLIN)," by Tina Kass and John Schroeder, "Networking 1983: Some Comments from OCLC," by Rowland C.W. Brown, "Network-Level Decisions: Basis and Key Issues," by Henriette Avram, and "Initiatives Toward a Bibliographic Communications Network for Canada," by Cynthia J. Durance; three additional ARL reports; a list of meeting participants; lists of ARL officers, directors, committees, task forces, and members; the membership list of the Canadian ARL; and the auditor's report for 1982. (ESR)

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May 4-6, 1983
Banff, Alberta

Minutes of the 102nd Meeting

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Research Libraries in the Online Environment

Minutes

of the

102nd

Meeting

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ASSOCIATION OF RESEARCH LIBRARIES

Minutes of the 102nd Meeting

James F. Govan, Presiding

The 102nd Membership Meeting of the Association of Research Libraries was held at the Banff Springs Hotel, Banff, Alberta, Canada, May 4-6, 1983, in conjunction with the Canadian Association of Research Libraries.

The program session convened on May 5. After introducing CARL President Guy Cloutier, who welcomed meeting delegates and guests to Canada, Mr. Govan turned the meeting over to the Program Coordinator, Margaret Beckman.

INTRODUCTION

MS. BECKMAN: I would like to welcome everybody to our program today on "Research Libraries in the Online Environment." The other two members of the Program Committee are Richard Dougherty and Martin Runkle.

We will begin the program with three speakers, who will set the stage for what we want to discuss in more detail this afternoon. Sharon Hogan, the Deputy Director of the Library at Temple University, will give us a definition of data in the online environment; John Black, Associate Director of the University of Guelph Library, will describe how the data are communicated; and Peter Wolters, Coordinator of Systems and Networks at the Canada Institute for Scientific and Technical Information, will discuss how the data are shared. Then, after a break, we have arranged four demonstrations of online technology from the Pennsylvania State University Library, the University of Guelph Library, OCLC, Inc., and the National Library of Canada. In conjunction with the demonstrations, Cynthia Durance of the National Library of Canada will also make a presentation on the iNET/Gateway experiment currently under way in Canada.

This afternoon we will turn to the implications of the online environment. Russell Shank, University Librarian at the University of California in Los Angeles will address the institutions perspective, while Nancy Brown, Director of Libraries at the University of Saskatchewan, will address the library perspective. We will complete the program with a reactor panel comprising of three library directors: Joseph Rosenthal from the University of California at Berkeley, Alan MacDonald from the University of Calgary, and Stuart Forth from the Pennsylvania State University.

So, without any more explanation of what we are up to, I would like to introduce Sharon Hogan.

DEFINING THE DATA

Sharon A. Hogan
Temple University

The storage of information in new formats and the resulting problems of integrating new formats with old formats have bedeviled libraries ever since the library at Alexandria had to place rolls of papyrus alongside clay tablets. Scrolls were followed by illuminated manuscripts, books, journals, and, during the last 20 years, a veritable torrent of new formats—microform, records, tapes, video cassettes, and films.

Today we are discussing the most recent incursion into our print-oriented world, the electronic format. In the jargon of computer technology, information becomes data, and, just as the nomenclature changes, so does the way of acquiring, storing, accessing, retrieving, and delivering information in the electronic format. While we as professional librarians are grappling with the technical aspects of the electronic invasion, patrons are beginning to ask questions about using "data." It is in conversations with these patrons that one begins to understand that there is ambiguity in the use of the term data. It does not mean the same thing to everybody. There are, in fact, various categories of data—just as there are various categories of information—and what a researcher may seek and what a librarian may provide could be two completely different things.

TYPES OF DATA

Bibliographic Examples: MARC REMARC Books-in-Print Biological Abstracts	Full Text Examples: Encyclopedias/Almanacs Directories Journals Newspapers Court Cases
Programs Examples: Pac Man Statistical Computations (MIDAS) Physics Computation Microcomputer Software	Numeric Examples: Census Stock Market Bank Accounts Surveys, e.g. RLG Conspectus
Geographic Example: Coordinates for Maps	Property Example: Chemical Properties

Table 1

Table 1 lists several types of data. The category most familiar to librarians is bibliographic data. It is our stock and trade. We create bibliographic data for catalogs, handbooks, indexes, pathfinders, and new acquisitions lists. We capture them on cards, in separate books, in ongoing serials, in journal articles, and in microform. We render them as analytical (descriptive, textual, historical) or enumerative (unannotated, annotated, abstracted). We call them all "bibliography" and are a little bewildered when our patrons become puzzled by the apparent dissimilarity in the application of the term. And now, the electronic format is superimposed over the unwieldy jumble. We have MARC, REMARC, and online versions of Books-in-Print and indexes such as Magazine Index, Psychological Abstracts, and Biological Abstracts. We input bibliographic data into network systems, local online catalogs, circulation files, and acquisitions systems. We access bibliographic data from vendors such as BRS, Lockheed, and SDC. The multiple forms and uses of bibliographic data in our libraries are all being transferred to the electronic format and with that transfer, the confusion of the patrons over the meaning of the word "bibliographic" becomes compounded.

Being print-oriented librarians, we might like to say that data are either bibliographic or nonbibliographic, but there are those in our profession who have worked very hard to classify electronic data as a separate category in order to be able to describe and catalog them more exactly.

Full text data are one of those categories—they are the electronic equivalent of an entire book or journal. Examples of full text data would be encyclopedias and almanacs available through videotext systems such as Prestel in England or QUBE in Columbus, Ohio; directories such as the Encyclopedia of Associations; journals (pilot projects are online in the fields of medicine and chemistry); and newspapers (The Philadelphia Inquirer). The legal profession has been using full text data for several years through the use of LEXIS, an electronic collection of court cases and statutes. In several universities there are huge data banks of original texts—novels, poems, plays—used in the compilation of concordances and the study of structure, grammar, and vocabulary of authors.

Program data are a separate and very interesting category. Program data are the software that allow a user to manipulate other data. A nonscholarly example is the video game Pac-Man. The program which enables one to play Pac-Man is itself data and would be the unit that is cataloged. Academic examples would include the computation programs designed for large university computers that allow scholars to manipulate a broad spectrum of statistical material and the more specific programs for computations in physics and astronomy. On a smaller scale, program data for microcomputers are the disc or tape that one buys to load into an Apple, Pet, or TI.

Another category is numeric data. To refer once again to a nonacademic setting, machine bank tellers operate with numeric data as do the vast and interlocking airline reservation systems. In an academic environment, researchers might request census data or stock market reports and librarians might use results of surveys such as the RLG Conspectus.

The last two categories that I will use as examples are geographic data and property data. Geographic data are used in the creation of maps by correlating the input of various latitudes and longitudes or other map-making information. Property data include chemical or physical properties of elements or compounds and can be used in identifying or creating them.

Libraries have systems that handle one or more of these categories of data (see Table 2). The large networks (OCLC, RLIN, WLN UTLAS) are primarily bibliographic networks, but the interlibrary loan subsystems of OCLC and RLIN are numeric. Local online catalogs hold bibliographic data; circulation and acquisitions systems handle a combination of bibliographic and numeric data. The latter compute fines, replacement fees, overdue notices, payments, and various statistical profiles.

THE LIBRARY CONTEXT

Systems Available Which Use Data

Networks:	OCLC	Online Catalogs
	RLG	
	WLN	Circulation
Vendors:	BRS	Acquisition and Serials Check-in
	Lockheed	
	SDC	Interlibrary Loan
	LEXIS	
		Electronic Mail

Table 2

Most large academic libraries have access to data offered by vendors such as BRS, Lockheed and SDC. While these handle primarily bibliographic data, all of them also handle one or two other categories of data. The Encyclopedia of Associations online is full text, and statistical computations are possible using Predicasts.

In spite of the number of computer systems that are now in libraries, the majority of those systems are devoted to bibliographic data. Libraries have merely transferred their traditional information handling tasks from a manual operation to a machine operation. Beyond the fairly widespread adoption of the bibliographic online searching offered by vendors—which parallels our traditional reference services—there has been little extension of library service to include access to the other data categories. How many libraries offer in-house searching of the census tapes? How many libraries have terminals in-house linked to a mainframe and available for patron use? How many libraries have purchased microcomputers for patron use and buy software from library funds? How many reference departments are aware of the computer programs available on-campus or through University memberships in computer consortiums and regularly refer patrons to electronic sources of data?

Patrons are aware of the wide variety of data that are now available in electronic formats and are asking for help in locating and accessing that data. As a starting point, the availability of electronic data and the differences in categories

of data must be clearly understood so that the dialogue between researcher and librarian is a meaningful one. Then, whether libraries choose to buy software programs or numeric data bases or any of the other categories of data and offer them in-house or choose instead to operate as a referral point to any and all information regardless of format, the role of the librarian in the total information/data seeking process will be clearly established. Libraries must revise public service philosophies to meet this challenge. If academic libraries are unable or unwilling to go beyond the traditional boundaries of public service as dictated by the limitation of printed information, they may well be consigned to the status of print museums.

COMMUNICATING THE DATA

John Black
University of Guelph Libraries

I am not quite sure how to approach this broad a topic in 18 minutes; it could take 20 minutes just to describe the potential technologies we should talk about without actually getting around to dealing with them in any realistic fashion.

What we are looking at today is, for lack of a better phrase, a veritable cornucopia of communications technology "goodies" which are available to all of us in the information business, whether it be libraries or a much broader spectrum. One of our biggest problems, obviously, is not the technologies themselves, but how to use them, and in particular, how to use them effectively. Within that kind of parameter, I believe the main problem we all face is how to look at the rapidly developing communications technologies and jump from our past and present experience to completely new levels of how we will use these technologies. It is often said, for example, if someone were to ask Johann Gutenberg, when he was working away with his converted wine press in the late 15th century, how printing would be used over the next 500 years, he would not have really come up with anything like a descriptive view of what printing is like in the 20th century. In the same way our successors in the future will look back upon what we are doing and realize how narrow our perspective was.

In the limited time available I wish to examine four basic areas: distribution technologies, communication network applications, terminal and end-user technologies, and a few very brief comments on some of the broader national and international implications.

When we start looking at distribution technologies, there is a whole series of areas that have potential use and application in our business. I would like to go through them very quickly, and hopefully there will be some time for discussion later. The kind of technologies which we have to be aware of and be watching right now in the distribution area can basically be isolated into several groups. I will go through them very quickly and then go back and talk a little bit about each one. There are satellite technologies, microwave digital termination systems, fiberoptics, and other types of broad band communications links like coaxial cable T.V. systems. We need to keep in mind the existing telecommunications networks which we often tend to overlook when we talk about new communication technologies—I mean, in particular, that black thing that "Ma Bell" places in the corner of most rooms and which is a very important and effective present day and future link of our whole communications environment: the telephone. I would also like to mention briefly some "offline" communications technologies which I believe we often have overlooked in this "online" environment.

Going back for a moment to satellites, for example, as a particularly interesting part of the future of the communications environment in which we will work, we have seen in the last 20 years something completely revolutionary come into our operational existence. It is hard to realize that communications satellites are only 20 years old. The first communications satellite was 1962. The first of the

true point-to-point communications satellites which we now take for granted today—the INTELSAT satellite series—did not go up until the late 1960's. If we look at these past 15 years of technology, and think how far that has taken us, we have considerable difficulty imagining what the next 15 years will look like.

Within the satellite field there are basically three types of communications technologies available. The so-called point-to-point satellites introduced with the long haul circuits, the INTELSATS, and some of the U.S. domestic satellite systems. Distribution satellites, which are more powerful birds and require smaller ground stations. They are the ones that can be used for distributing business data, for example at the moment, the ones you see on the roof of the Holiday Inn used for teleconferencing. The third generation of satellite which really is not in place yet but will be in late 1984, the so-called DBS system (direct broadcast satellite). Direct broadcast satellite systems are a bit of a misnomer, because they really are not going to be just broadcast in a sense of television or other entertainment media; they will be very much used for data as well. The first operational DBS system in the world was here in Canada: "Hermes" serviced Northern Canada until we loaned it to the Australians and it disappeared when telemetry control was lost.

The satellites have the potential of providing very broad band communications capacity that is totally distance insensitive. It will cost as much to send a chunk of data from this building to the one next door as it would to send it across the continent. The amount of communications capacity that is available in one satellite transponder is something that we who are moving large volumes of data need to keep in mind. One example of how this particular technology could be used would be for the down-loading of large volumes of bibliographic data. You could take a distribution satellite or, potentially, a DBS satellite, use one transponder for two hours in the middle of the night, and dump all the updated MARC cataloging data, for example, to subscribing libraries or participating libraries all over the continent. We might want to come back a little bit later to see how some of the satellite technologies can be used.

The potential use of cable television is another area which we tend to neglect here in Canada. We think of "cable" primarily as a means of bringing you "Laverne and Shirley" on 14 channels, and it is all from a U.S. source. But that is a rather narrow view of the future of cable television, and there is no doubt that that same broadband link that is coming in from the street or across town can very definitely be used not just for cable T.V. but also for cable data, remote sensing, two-way interaction, and a variety of other services. We have in Canada, for example, an Ottawa based company, NABU, which is test marketing in the Ottawa area a cable based system using microcomputers, where they have provided a micro for the home that uploads and downloads data and programs through an existing cable television network.

In addition to satellites and coaxial cable links, fiberoptic systems are coming along, although perhaps a little more slowly than many people anticipated. Those of you who have been exposed to fiberoptic systems will know the potential they have for moving large quantities of data. I am assuming that everybody in the room knows what fiberoptics are—glass fibers the size of a human hair with lasers shooting this information down the fiber encoded on beams of light. There is great potential for using fiberoptic systems combined with other technologies. Satellites for the long haul, digital termination systems using microwave (which are in place

now) for distribution within urban areas or distribution in relatively shorthaul areas (50-60 miles), and then fiberoptics links for local distribution within buildings, within college campuses, within towns, for example.

I do not wish to develop the question of trends in off line technologies completely, since this is an online environment meeting. Nonetheless, I believe we have to remember as well that we are seeing the development of a series of means of communicating data that does not necessarily have to involve a hard link to the source. I am thinking particularly of optical digital discs, for example, and of some of the things that are happening with magnetic media like floppies and small removable Winchester drives. We also have, in a sense, a new generation of the optical disc concept. A company in the U.S., Drexon, has developed laser optical systems using a card the size of a credit card on which you can put five megabytes of data. Five megabytes—that is a great deal of information we can move around very quickly in a physical form the size of a standard credit card. In addition, the "reader" that they have developed for this process will sell for certainly under a thousand dollars and perhaps even as low as five hundred dollars.

I believe we have to be careful therefore, when we talk about moving data, not to concentrate on just moving it by connecting something to something. There may also be a number of other alternatives for moving information that do not involve that kind of connection: the offline connection. This offline "communication" is also vital.

Going back to the communication network technologies, I am not going to try to go into all of the various network configurations and possibilities; people will be talking about some of this later. I would just like to mention two particular areas, one of which you are all, I know, familiar with, but I think we have to think about how it is going to be used a bit more in the future, and that is packet switching. This is a technology which has enabled information service vendors and carriers to offer very inexpensive telecommunications facilities that particularly suit the kind of information and data we are giving them. Packet switching has enabled the offering of basically distance insensitive (and, to an extent, time insensitive) data communications. I do not know of anything else that has revolutionized information access as much in the last ten years as the development of packet switched networks. But in addition to the packet switched technology, we are now seeing a number of other switching technologies which are sort of bubbling forth as well. New types of digital circuit switching technologies, high speed multiplexing of existing circuits and a variety of other means which can allow development of different types of communications networks than we have seen in the past.

One particular example of what no doubt we will see much more in the next decade is the development of new types of value-added services on public communications carriers. One example of that in Canada is the development of iNET by the TransCanada Telephone System (TCTS). This is a value-added service offered by a communications carrier which has considerable potential for any type of library institution.

In passing, I would like to note that we are also seeing, perhaps even more than in the past, the critical role of standards in the development of communications technologies. I am not thinking about the types of standards that librarians usually think about, because that is not really my concern at the moment, but of technical

communications standards. This is an area where we in Canada have a fair bit of involvement, but I think in terms of time we had better skip a detailed discussion for the moment. During the demonstrations you will see an example of the Telidon system which is one of the applications being offered through iNET. Those of you who have not seen this type of videotex system might well want to take a look at that particular aspect of new communications technology.

If we jump from the communications technologies in the broadest sense to the other end of that communications link, the end-user, we are now seeing changes in end-user facilities for accessing communications networks, changes which are much more dramatic than the changes we saw in the 1970's. For example, the development of desk top work stations with computer power that is far beyond the main frames that we were struggling to access in the distance a decade ago. The availability of these facilities have tremendous implications for the ways in which we try to communicate information and particularly implications for the kinds of things that we try to move and the kinds of information that we try to deal with locally.

One of the thorny questions that we all must ask in this area right now is "what is a terminal?" Is a terminal a "glass teletype," a replacement for the old teletype KSR group that is dumb and sits there and displays things on the screen? Is it a microprocessor controlled intelligent terminal? Is it a microcomputer with storage and intelligence built in? Is it a mix of all of these? We are moving to a whole new generation of portable intelligent terminals that may considerably affect how our end users, for example, approach our systems, how they access them, how they get into them.

I could not resist, as Margaret knows, bring along an example of this technology, which is in a sense perhaps the prototype of the executive work stations of the future, or whatever you might want to call it. It is a Radio Shack, TRS80 Model 100 microcomputer. There in one box the size of a, if you will pardon the expression, book, you have a microcomputer that is also a communications device. An 8085 microprocessor, microsoft BASIC, a text editor, telecommunications software, 32K bytes RAM RS 232 interface, parallel interface, built-in 300-watt modem, auto dialer, HP compatible bar code reader ports (for those of you who like black and white lines). All there in a completely battery operated package, tuck it in your briefcase—\$995.00 at your closest Radio Shack, for those of you in the U.S; slightly more expensive in Canada. But, if you think about it, there is a communications tool beyond anything that we had, let's say five years ago, and that 8085 is a very powerful microcomputer. It is more than many of us worked with in terms of "main frames" in the '60's. If that and other similar systems are not going to change the way our users expect to approach our information collections, I will eat my proverbial hat.

There are so many exciting possibilities for communicating the data today that at times I feel very frustrated by our inability to pull them all together. As I indicated at the start of this presentation, we are still a long way from putting together this incredible bag of technological goodies that we have at our disposal. Some of the reasons why we have this problem, particularly when we start thinking of the international context (and this is, after all, an international meeting) are not to be found in the technologies at all. Technologies are the easy part. Nonetheless, when we come to these technologies we have a range of legal, political, economic,

social, and in some cases even moral problems facing us. One of the "moral" or "ethical" problems that we encounter in use of communications technologies coming up in the U.S. context at the moment is in terms of national security: open access to certain public databases in the U.S., of technology transfer and the security aspects of moving so-called public information in the U.S. outside the U.S. to other countries. There are some rather vivid examples of that one can think of in this area.

I love to be asked to give a sort of "blue sky presentation" where one can talk about the future, what is going to happen, speculate, make projections, etc. I guess the odds for being held responsible for what you said are very limited. I find it much more difficult to stand before an audience like this and talk in realistic terms of what these communications technologies are going to do to and for us a year from now or 18 months from now or two years from now, especially in the knowledge that I may see you all a year or two from now and you will say "Why the hell did you say that last year?"

There are, however, a number of trends which I believe one can identify in the development of communications technologies right now. Some of those trends are very obvious: trends towards increasing miniaturization of all parts of the chain, trends towards higher speed distribution of data and generally speaking lower costs, trends towards much higher capacity offline storage devices, again at lower costs. There is an article on digital storage technologies in a recent issue of Byte for example, which forecasts the availability by the mid to late 1980's of optical digital discs with 1.5 gigabytes to 2 gigabytes of storage, so that is 1500-2000 megabytes of storage on an optical disc that will cost \$150.00 to produce. So that kind of trends, more bytes for your buck type trends, are certainly evident.

What that also brings with it is increasing potential for decentralization of access and decentralization of the creation of data. It removes many of the geographic boundaries that had existed in the past and it removes much of the rationale for having to concentrate on things in large urban areas, for example. The development of the distribution satellite technologies blows this apart completely. Today we still have certain limitations (for example, those of us who are trying to operate data terminals out of Banff know that there are certain hazards) if you are not in major urban areas. But once we can put a 1.2 meter dish out here on the patio and connect it to a satellite without having to pay a \$10,000 up front charge—that will encourage some changes in terms of geographic location.

We are seeing a breakdown of central organizational control in many ways because of the potential for decentralizing the access and distribution technology. We are also seeing our users, the end users of the information that we are dealing with, developing totally new means of approaching our collections. They are approaching our collections with new demands. They are approaching us with new requirements and we had better be ready to respond to those requirements. We are seeing researchers now who are used to being able to do their own thing with their microcomputer and they want to know why they cannot do their own thing with their microcomputer related to our files, for example. We are seeing kids coming in from the high school system who have been used to computers since they were seven years old or five years old.

I believe one of the most basic trends we are seeing is that of continuing change

and continuing shifts in the relative cost advantage of various types of technology. Right now, for example, we are talking about satellite technology looking interesting in terms of moving large quantities of data in a very inexpensive manner. I would be quite prepared to bet that we will see optical disc technology perhaps replace that for a period of time until something else comes along and replaces it yet again.

The part that boggles my mind in this whole field right now is that as we talk about all these technologies we are talking about something that has happened in the last quarter century. We are traditionally, in libraries, used to dealing with something that has been around for 500 years more or less, and now we are talking about completely changing that with technologies that have come into place in 25 years--some of them not in 25 years, but in 2 years or 18 months or in 6 months. For all of us there is a terrible physiological shift that has to take place. That to me is the most challenging part of what we are facing in the communications technology area.

SHARING THE DATA: LIBRARY NETWORKING

Peter Woiters

Canada Institute for Scientific and Technical Information

A network is generally defined as an arrangement that facilitates interconnection and resource sharing among a group of individuals or organizations. Possibilities for library networking are now greatly enhanced by the diversity of technical alternatives available for distributed, localized library resource sharing or the traditional bibliographical utility concept as exemplified by star-type library support networks.

In the context of library networking, a star-type system may operate within regional, national, or international boundaries. Its major asset is a centrally stored and remotely accessible database. Access is achieved through standard or semi-intelligent terminals linked to the central host by packet-switched or dedicated communications facilities. Depending on the design philosophy, a user may interact with the system on a line-by-line basis or through high-speed, block-mode protocol terminals which transmit the content of an entire screen at a time.

In recent years, star-type library networks have assumed additional functions through the provision of value added services. Systems such as OCLC, RLIN, and WLN, in addition to providing shared cataloging and processing functions, now offer an array of integrated services including electronic messaging, online document ordering, interlending protocols, and turn-key installation support for specific housekeeping functions, which in turn interact with the centrally maintained database. For example, UTLAS's ACCORD subsystem is an online acquisitions control module which enables clients to perform pre-order searching and to create purchase orders, claim orders, and cancellations. Participating vendors receive orders electronically from UTLAS clients and use the system to communicate on the status of any given order.

Sixteen departments and agencies of the Government of Canada are now using the shared cataloging and searching modules of DOBIS, a system jointly developed by the National Library of Canada and the Canada Institute for Scientific and Technical Information (CISTI) to meet specific Canadian needs and to respond to the national service requirements of the two agencies.

Independently, and in compliance with its mandate, CISTI operates a star-type network to provide a variety of services. CAN/OLE offers access to international databases in science and technology, and to national databases which facilitate resource sharing or which are particularly important to our national priorities. CAN/SND, a program disseminating critically evaluated scientific numeric data, is accessible through the same network host. By providing online interactive document ordering facilities to over 1,000 users, CISTI now receives about 20-25 percent of all its requests through CAN/OLE and will shortly permit subscribers to switch document orders directly to participating database suppliers in Canada.

No description of library support networks would be complete without at least identifying those star-type information utilities on which our patrons increasingly rely for research and decision-making processes. Generally speaking, they fall within the following broad categories: finance, economics and econometrics, industrial, credit, audience measurements, product movement, demography, general business and industry, news, scientific and technical, legal, government, real estate, professional services, and consumer information. Depending on mandate and corporate goals, a research library or information center would draw upon any number of these information sources and utilities. We would be well advised to recognize their importance in our respective national information and resource sharing networks. As a matter of fact, it may be of interest to this audience that LINK's Electronic Information Program estimates that the share of library support networks in 1982 was only 1.7 percent of the total, and will decline to 1.2 percent by 1987.

Before elaborating on the alternatives available to a modern library, I would at this point like to describe a number of established and emerging network vehicles.

Cable utilities in the U.S. and Canada are now in the pilot project stages of delivering audiovisual and textual services, including software, to subscribers by "down loading" computer-based, interactive services in education, management, finance, and entertainment to the home and business market. This is technically achieved by using the broad-band capacity of the cable network, which can be interfaced with a data broadcast computer located at the office of the cable operator. Connecting local university or public library online processors to such a computer would permit access to these resources by any authorized patron from the home. This development will give a local library system or information provider significant opportunities for the delivery of services. Any such system must of course be designed and configured to meet specific local needs and requirements.

A pilot project of this technology is now under way in Ottawa by NABU Manufacturing Corporation and Skyline Cablevision. Forty-six percent of recently surveyed trialists indicated a strong interest in the service and a desire to acquire a microcomputer which is essential to interact with the network.

Common carrier developed, and operated electronic mail and messaging networks have been adapted by libraries in the U.S. and Canada for the purpose of routing interlibrary loan data in a structured manner. By structure, I mean the compliance with a predetermined sequence of data elements depending on the type of document requested and the method of delivery selected. In the case of Canada, I would like to mention ENVOY 100, which is a nationwide electronic messaging service provided by the TransCanada Telephone System (TCTS). In 1981, CISTI engaged in a pilot project with an industrial user of our document delivery services to adapt ENVOY 100 to the specific interlibrary loan requirements of both parties. From an initial 200 orders in mid-1982, we are now receiving over 1800 requests per month from most Canadian provinces. In addition, many Canadian libraries are now routinely exchanging interlibrary loan requests via ENVOY 100. Since machine-readable data is being transmitted, the electronic messaging system can be adapted for post processing by library-owned computer systems for the purpose of automatic call-numbering, management information, statistical analysis of collection use, and routing to designated stack points.

Word processors equipped with the TELETEX communications protocol can now communicate with one another over the public telephone and TELEX networks. Both the TCTS and Canadian National/Canadian Pacific (CNCP) system will introduce this service in Canada in 1983. With 50,000 subscribers to the TELEX network in Canada alone, libraries receiving requests or other communications can look forward to common formats and standards independent of the transmission medium selected by a client. By creating the information on a locally owned or leased word processor, significant communications reductions can be achieved. All the foregoing are examples of how private sector-developed systems, independent of the star-type library networks, have been adapted by libraries for the purpose of resource sharing.

End-users prefer answers at their fingertips over referrals to secondary document sources. This requirement is leading to the development of document delivery systems based on optical digital disk technology. Also it now appears that in the face of substantial additional investment, several ADONIS sponsors will be withdrawing from the project; it has been determined that initial technical problems have been resolved and a system could be started quickly should publishers accept funding from outside the industry. Since this technology combines information retrieval capabilities to allow the location of the full-text documents, it may be fair to speculate that existing library networks may have to interface with such systems or face extinction. The hardware technology underlying ADONIS is largely U.S. based and both the Library of Congress and a French network are exploring the similar technology. The British Library as a major international document provider is negotiating with the ADONIS Consortium on an ongoing basis. To elaborate on some of the technological capabilities driving full-text document delivery systems, it should be pointed out that laser-based optical disk technology is being marketed as a digital mass storage medium. This technology has implications for office automation, mass storage devices for main frame computers, and profile-driven instant libraries, the latter being of particular interest to security and cost conscious industrial users. For example, with a net use capability of 1.6 gigabites, 3M is targeting the low end of the data storage market competing with magnetic tape, magnetic disk, and microfiche with a 100 to 1 decrease in cost per byte. This would be roughly equivalent to storing 14 million average size Library of Congress records on five double-sided disks. The U.S. Patent Office will spend \$341 million over eight years, using text and image processing techniques to manage 12 million patents. I need not elaborate on the point that lowering storage costs to this extent will offer significant opportunities for local library systems wishing to replicate online catalogs over a distributed network.

Distributed networks, as the name implies, spread corporate processing power over a network which may be a university campus, a state, a province, or one or more countries. A variety of technical implementations are feasible depending on the organizational objectives and power delegation. The concept of distributed networks facilitates local resource sharing, creativity, and decision-making, leaving many institutions in the private, academic, and public sectors away from the exclusive reliance on star networks. For example, specialized applications and services, including those provided by libraries and information centers are distributed over several computers dispersed over a multi-city campus network at the Université du Québec. Similar configurations operate at the University of British Columbia and the University of Calgary.

At the University of Guelph, a highly distributed database system based on GEAC mini-computer hardware, is supporting circulation control, acquisitions, online access to the entire campus holdings, and an online catalog subsystem. The University of Guelph library resources are made available campus-wide via a Gandalf communications network. A variety of university-owned computers and applications are in touch with this network which also allows for call-in and call-out via a private access exchange (PAX) to a packet-switched DATAPAC network. Through this independent, self-sufficient pursuit of its library automation program, the University of Guelph Library has also created significant national and international opportunities for GEAC Canada Ltd.

The great variety of services available to libraries through multi-purpose networks will increasingly require the use of integrated workstations capable of supporting graphics and voice as well as hand-shaking and gateway services to access connected hosts.

It is to be expected that such devices will be standard tools for library executives and information workers. Because of their resident word processing, graphic, and statistical capabilities, micro-computers will assume this role as witnessed by the introduction in many libraries of personal computers manufactured IBM, Bell-Northern Research, and Mitel Corporation, to name only a few. One major consequence of powerful, multi-purpose workstations will be that primary policies based on connect time principles are becoming obsolete. This is a direct result of technological changes using programmed and user controlled intelligence to minimize elapsed time.

To bring under control communications infrastructure investments, considerable attention is now being given to Local Area Networks (LAN). LAN meet specific criteria that other networks commonly do not:

1. They are geographically compact (1 to 10 kilometers), intended to link single or nearby buildings owned or occupied by one of the organizations.
2. They permit different hardware brands to be introduced into the network.
3. They provide much faster data transmission rates.
4. They can be expanded easily and incrementally.

Privately owned and controlled, LAN operate on a very high bandwidth in the megabyte/second range. Interconnection may be achieved through a bus, ring, or star architecture linking existing internal and external computer systems and large capacity storage devices, as well as special purpose microprocessors and the above mentioned multi-function work stations. Additional capacity and applications are simply superimposed on the existing local area network.

The National Library of Medicine is in the final stages of implementing a bus-type LAN providing:

1. Gateway services from LAN to the public network;

2. synchronuous access to a large number of users;
3. dial-in access to the LAN; and
4. out-dialing to non-LAN host computers.

As a result, a variety of CRT terminals, word processing systems, printers, mass storage devices, and microcomputers will be connected to many host computer ports via a broadband coaxial network. Charity starts at home and local area networks will be recognized as an effective way of supporting inter-organization library resource sharing. State-of-the-art intelligent or gateway networks are now being defined, tested, and implemented in both Canada and the United States. The Chemical Substance Information Network (CSIN) is a gateway service developed by the Environmental Protection Agency and is now being used on test sites in some 50 government, commercial, and non-profit organizations. The gateway's function is to mediate between users and service providers offering information related to chemical substance. The current version of CSIN can be used in three different modes:

1. At the simplest level, it can automatically dial up and log on to a given system.
2. It can download and manipulate data resident in network utilities.
3. It can take a user query and break it down into components to allow multi-system searches including restructuring research strategy to meet the requirements of the target system.

The Linked Systems Project includes the design, development, and implementation of a standardized telecommunications link between WLN, RLG, and LC. Independence from hardware and software systems will allow other distributed library systems to link up with at least the above three systems until 1984.

In Canada, the iNET gateway is an intelligent network concept developed by the TransCanada Telephone System. iNET offers a single point to access of a great variety of computer systems including international, national, and local networks and special purpose processing services. The technological implementation includes a wide range of features such as electronic directories or "yellow pages" of available services, over 500 in the case of iNET, automatic access to connect the hosts and tailor-made user profiles recognized by the network. In progress since July 1982 and terminating in July 1983, the iNET trial consists of Common Interest Groups in the energy, legal, communications, banking, real estate, travel, and bibliographic sectors, with the latter being coordinated by the National Library of Canada. The Canada Institute for Scientific and Technical Information, the National Library, and the libraries of the University of Guelph, Carleton University, Université du Québec, and the University of Waterloo are participating trialists and information providers. iNET will be tested in the Open Systems Interconnection context. Developments now under way at the National Library as part of the iNET trial will permit, by July 1983, the prototype transfer of CAN/MARC records between DOBIS and four connected library computer systems and the same concept is ready for testing between the library-owned systems of the Université du Québec and Carleton University.

File transfer, which need not be restricted to cataloging data, is an important step in achieving access to and exchange of data in a nationwide Canadian information network. Intelligent networks will allow the controlled interaction between local, independent library systems and national information providers on an as-needed basis and as equal partners. Indeed, the entire philosophy underlying gateways acknowledges that replication of software or data is not necessary and should be left to the network or to the local library systems to manage.

Networking technology for the purpose of information and resource sharing among libraries in the U.S. and Canada is advancing at such a rate that it has become almost uncomfortable to absorb and implement in a logical sequence. Economic considerations, local autonomy, availability of expertise, and, above all, corporate mandates will determine our respective library networking and attitudes and configurations. Nevertheless, at least in the technological sense we have run out of excuses. Communications technology has now reached the stage where the interconnection of diverse systems at all levels is feasible and can be implemented for the sake of the ultimate beneficiary—the information user.

DISCUSSION

MS. BECKMAN: Thank you very much, Peter. We now have time for questions, if you wish, for any of our three speakers.

MR. DE GENNARO (University of Pennsylvania): I wanted to ask Peter to clarify what he said about ADONIS—that the technical difficulties that had caused it to fall apart have now been overcome. Could you say a little more about that?

MR. WOLTERS: The consortium leaders stated that both the storage and retrieval components of ADONIS had been successfully tested but that a production pilot would require substantial additional funding—in the order of several hundred thousand pounds.

MR. ROGERS (Yale University): Peter, I wonder if you could repeat something that I heard about halfway through your remarks. I believe you were talking about optical disk technology. Did I understand correctly that you believe that by the end of the decade the advantage of that technology over present storage media—such as microfiche—might be on a 100 to one basis, or were you speaking of something else?

MR. WOLTERS: Yes. These are, of course, quotes from this particular industry. What I meant was that these cost reductions will be over present digital storage such as IBM 3350s or 3380s.

MS. BECKMAN: Do you want that expanded a bit more?

MR. ROGERS: Would he explain the amount of material that can be stored on a disk? Put it in more concrete terms.

MR. WOLTERS: Well, as I said earlier, 14 million average size records, say 1000 characters each, can be stored on five optical digital disks, each the size of an LP record. For example, our own CAN/OLE system now requires three gigabytes to store about 12 million records on five 3380s. Aside from the reduction in pure hardware cost, you have to include additional reductions achieved through reduced capital, environmental, and backup requirements.

MS. BECKMAN: Other questions?

MR. WELSH (Library of Congress): Rudy, specifically, 150 books on two sides of a 14 inch disk. Peter, Rudy asked another question—he thought you were comparing the compression onto a disk versus microfiche and I had forgotten what the ratio is. Is it 30 to 1?

MR. WOLTERS: I am afraid I don't know. I was using strictly the comparison between existing magnetic recording techniques and optical storage disks.

MR. WELSH: Well, I think it is 30 to 1.

MR. LUCKER (Massachusetts Institute of Technology): I assume that Sharon's list of types was examples, but still I would compound the difficulty by mentioning

four other kinds of data that we not only have to store, we are already storing. One is structural data; it is now possible to store in digital form chemical structures, and move the structures around graphically on the screen. And another component of that is data actually changed by the user. Second, another major area is graphic data. You can digitalize photographs and other images and store digitalized information to be reconstructed. Third, electronic music, in a sense, is the storage of visualized musical information. And finally, we should include radio electronic signals themselves, such as solar waves transmitted and stored electronically. It sounds a little sci fi, but actually these are all examples of information that we are already storing in our institutions; we probably could have an interesting time thinking of all the other kinds of data we might have to store in libraries. But I believe this is a useful catalog of types and it is kind of scary.

MS. BECKMAN: Any more questions?

MR. VEANER (University of California, Santa Barbara): I just want to add one more horror to Jay's list, and that is the storage of cartographic data in digital form. Cartographic data have an enormous appetite for storage. There is work in this area already under way at the California Institute of Technology in Pasadena, and in many U.S. and Canadian government agencies.

MR. PINGS (Wayne State University): We are talking a great deal about preservation of paper and all of you are talking about data storage and transmission. What plans are there for seeing to it that data are preserved? Because I certainly find in my institutions and others that I deal with, the task and the organization of seeing to it that data are correct and available and not destroyed or just suddenly gone—is a real one.

MR. BLACK: That certainly is a very real concern from several points of view. One is in terms of intentional preservation of data when one wants to make sure there is some permanent recording of information we have taken for granted, the existence of the New York Times, for example, as a permanent record of the events of the day. What happens if everything is recorded in magnetic form type media and, for example, is subject to revision? Could you imagine going through the online magnetic database and doing a total exclusion of every reference to MIT, for example, from the database? So there certainly is that kind of technological concern.

The laser videodisk in a nonerasable mode does certainly have potential for long-term storage of digital information in a very cost-effective and permanent manner. There is a lot of concern, at the moment, in the industry about the durability of magnetic data storage, and also the degree to which data that are either magnetically stored or being transmitted through the use of the radio frequency spectrum are subject to potential interference, intentional, or accidental. The whole concept of, for example, electronic warfare involving electromagnetic interference is of major concern to the military. Potentially it could be of concern to us, too. If somebody zapped our disks with some sort of large electromagnetic field, we could find ourselves with X number of disk pacs that have no useful data on them. So I believe your question highlights a very long term problem that all of us should keep in the back of our minds.

But one very viable possibility for this long term preservation type encoding of

data is certainly the laser digital disk technology. It is stable. It is not easily destroyed. It is relatively easily replicated so that you could have multiple copies of it scattered around the world, buried in the salt mines of Utah or any other places you put data. It certainly has the physical potential for very long term storage, much better than paper ever did. Somebody, however, has to get the act together and organize it and get that data onto those digital disks. That is going to be, I believe, the biggest problem. But in the meantime, the electromagnetic interference question—it makes very interesting cocktail discussion.

MS. MARTIN (Johns Hopkins University): I know that we are talking about technologies which we may not be using right now in libraries for the most part but that are nonetheless real. Please correct me if any of these things that I am saying are wrong, and I just refer, John, to what you have been talking about, but I do have another question that goes a little bit further down the road. I have read articles that seem to say that optical digital disks through the lifetime is unknown—some people guess ten years, some people guess twenty years—are easily copied, so this is one way to make sure that data are preserved. That, of course, brings up the logistical problem of how do we do this? How do we handle the data? But while we are talking about this, we know that direct read after write is going to be available within the next couple of years, with other ways of making the optical digital disk more easily useable within this decade. The technology is advancing very rapidly—what I would like to know is what is after the optical digital disk? Is there anything that is in the labs now that we should perhaps be aware of in terms of storage of information that would have impact on how we use what we have been discussing here this morning?

MR. BLACK: Most of the developments that have been talked about in public forums are still developments of technology that we have at least had some glimpse of, e.g., holographic storage, bubble technology, optical disk, vertically encoded magnetic media. The latter just blows my mind: the thought of the magnetic floppy disk instead of just being coded at one level on the surface, having 1.2 megabytes; you have also input layers of encoding, so it is going vertically and is multiplexed. They are talking about multimegabytes of data on floppy disks, and that again is something we know can be done. In terms of the really "wild card" developments, I have not seen anything that does not derive from something of which we already had some inkling. Let us go back to that 20 year timespan, however, the communication satellites, 10 years for large scale integrations. God only knows 10 years from now when we meet together in Banff what is going to be available.

MR. WOLTERS: I just wanted to make one comment. If you followed the digital disk storage technology over the past ten years, you would have experienced a cost reduction in the order of 100 to 1 during that period. I am now saying that optical disk storage will give us again similar ratios over the next five to ten years.

ACADEMIC INSTITUTIONS AND THE ADVENT OF THE INFORMATION AGE

Russell Shank
University of California, Los Angeles

Libraries, we know, have been in the automation business, and hence attuned to the new information age, for years. And we have not done badly. We have more data on line in more systems, and tie together more academic institutions in telecommunications networks than any other academic group.

But the general academic press has paid little attention to us. Now, all of a sudden, the new information age seems to be sweeping across campuses like a tidal wave. The online catalog is merely one symptom of a larger information age syndrome affecting academic activities. Altogether, the many symptoms portend a major evolutionary development of the values of faculty members and students in the entire spectrum of education, giving prominence to the use of new information technologies as essential features of the educational process.

The burgeoning ownership and use of microcomputers is cited as the driving force in this change of values. But that is only part of the story. Developments in telecommunications technology are freeing us from the constraints of time, of distance, and of channel scarcity in information transfer and handling. It is the integrated circuit chip and the new spirit of competition in telecommunications which give us the potential to capitalize on these freedoms and to induce change.

Now there is an air of vibrancy to the post-industrial society, which—though it has been coming on for over a generation—has seemed to most people to be distant. Satellites have been flying for communications purposes for a quarter of a century. It has been 15 years since the Carterfone decision which allows equipment to be attached to the phone systems even though not owned and operated by the few major common carriers. MCI has been in business for 20 years (it took six years for the Federal Communications Commission (FCC) to let it go public). Carterfone and MCI are the results of the earliest attempts to break the telephone company monopoly on common carrier communication.¹ The rest of the competition comes next January with the breakup of AT&T. And it was eleven years ago that Frank Norwood and I addressed a meeting of ARL in Atlanta on telecommunications and the research library.² History repeats itself—but it is always more expensive.

Now suddenly the newspapers are filled with ads for things one can attach to the phone system. We are even offered the chance to buy the phones that AT&T, GTE, Continental, and a few other companies once guarded more assiduously than their virtue. A neat new way to compartmentalize and switch radio-wave phone messages will soon put telephones and pagers on bicycles as well as in Cadillac limousines. In arcade centers the nervous tic has become a national characteristic of heroism and honor. And these centers are among the hottest pieces of real estate on the market. In some places they vie with adult book stores as businesses which some seek to banish to back streets—a sure sign that they appeal to our most basic instincts.

The message is clear: the information age has broken through to encompass everyone. It is not only the microcomputer, but also the x-rated wristwatch, which is turning people into communication addicts. And all of the calculations going through the chips have to be made discernible. Display devices (loud speakers, stereo headphones, television monitors, handheld television screens) are as essential as the chips themselves. The nation is becoming intellivated.

But let's stick to the campuses. Computing has been with us a long time. Some academic disciplines could not have gotten as far as they have without it (e.g., high energy physics, statistics, mathematics, and some phases of engineering). Microcomputers, the expansion of communication channels, and of recording and display devices are compelling more people to get involved in this once esoteric way of life than EDUCOM* has ever done in all of its years in business.

We have all heard of the Carnegie-Mellon approach—everyone get a microcomputer and you will all be tied together into a learning experience which is essential and eternal.³ But that is far from all. Stevens and Rochester Institutes of Technology are asking students to buy microcomputers. Brown University just finished building a 120-seat amphitheater equipped with a network of minicomputers designed and programmed to teach computer concepts;⁴ and it plans to expand from 18 to 60 computer workstations within two years.

Some engineering students at Case Western will submit paperless homework on DEC personal computers this fall.⁵ Stanford estimates that 80 percent of its faculty will own microcomputers by 1987.⁶ There are about 1,350 bibliographical databases online: 138 of them were added in three months in the fall of 1982.⁷ That is the greatest growth ever in any given quarter. The DIALOG and Orbit systems are available for home computer access at night. The Institute for Scientific Information is now selling some software for microcomputers that will log onto DIALOG, ISI, BRS and MEDLINE for the user and will search any of these systems with just one easy to use language. References can be downloaded onto one's own disk—and ISI will not charge for copying from its database. The American Chemical Society will offer all 18 of its journals online through BRS in June.⁸ A bill in the California legislature proposes to let California schools develop computer-education curricula with state funding.⁹ And there is a new journal—College Microcomputing—a sure sign that the trap is sprung.

This list is only the tip of the iceberg. All of the evidence is persuasive. The information age is sufficiently established to now be visible and effective in much of American society. Another aspect is apparent: there is a merging of the special elements of information handling with each other, and with the general elements used by the public.

Data goes into and out of telephone lines. The computer monitor and the television set look, and can be made to act, alike. Graphics and color are key features of the personal computer capabilities and are the workhorses of the special effects events of movies. The computer-aided design part of CAD/CAM allows images on a monitor to behave in Disney-like fashion. Products are being made

* Interuniversity Communications Council, Inc.

plug-compatible, and so many devices are available for home consumption that some television sets are sold to the general public as "monitors" so that everything—hi-fi sets, speakers, recorders, video games, home computers, and even the telephone—can be easily plugged together for pushbutton (even remote) selection.

People are quickly developing a "hole in the wall" habit that they have long had with the electrical power system—with one standard jack into which they can plug toasters, lamps, driers, cornpoppers, and baby bottle warmers. Now data and images can be delivered to another hole in the wall, and people can interact with them. They will not understand if they cannot get to our catalogs through that hole.

There are in this move to the online world several major issues. First, libraries are not alone the motive force—perhaps not even the most important force—driving the academic world into fuller accommodation with the information age. Campuses are filled with information resources (e.g. film archives, museums and galleries, slide collections, personal bibliographical files, manuscripts, and notes). The information technology now widely available is tailor-made to store the images, texts, and indexes to them, to manage and move them, and to provide access to them. Personal computers can interact with each other, and can be made to work like terminals tied to a big machine. What is needed, among other things, are local area networks—data and video highways on campus.

Something we have not paid much attention to, at least in the library business is that the local area networks and the national data highways—the ones tied to the telephone system—do not match. The local area networks that we have coming on operate at much higher speeds and much lower error rates than do the national intercity communication networks, and the linking of these two kinds of networks is an issue we will have to address.

Second, the mission of higher education will have to be spotlighted—maybe redefined—to assure that it is attuned to the post-industrial society, and to the directions of the information age, and not just to accommodate to it by adding some gadgets to the normal processes of education. An examination of the dimensions of this issue was the theme of the recent annual conference of the American Association for Higher Education.

Response to the demand for the creation of an online environment, therefore, is not just a library problem: it is a campus problem. So far campus administrations have not only done a good job of coming to grips with the computer age, they are falling further behind.¹⁰ The capital costs alone for the installation of an electronic infrastructure are appalling. And it is estimated that the nation's colleges and universities will have to spend upwards of one billion dollars a year for the operation of the electronic infrastructure we need. Someone has said that campuses should spend as much to operate their telecomputing utilities as they do on their libraries. Unless we want to have a smaller amount of money for library operations, the total campus budgets must go up.

This only hints at the potential and the problems for campuses and libraries in this new phase of the information age. My agenda of issues to be considered is probably not complete, but this I see from my experience with online campus systems to date.

Because more people and groups on campuses, other than librarians, now have strong vested interests, in the installation, management, and use of information handling facilities, the process of dealing with the issues is much more sophisticated, difficult, and time-consuming than it ever has been. And as the stakeholders increase in number, the solutions to their problems are subject to compromise and imperfections. The power of the numbers may force the blossoming of the information age on campus but the results could be monstrous. Planning, talent, and money are the palliatives—and these are in short supply.

The coming on of the information aspects of the post-industrial society, then, will strain relationships among traditional campus departments. But electronics allow for new and more powerful interactions among the holders of information resources. To take full advantage of the information age capabilities we may find it necessary and unavoidable to be involved in a number of new organizational structures on a campus, or perhaps some ad hoc arrangements which tie information resources together even if organizations do not have to be changed. The processes for handling this kind of problem are both aggravated and made manageable by electronics.

In the online age we will see or hear from more users than ever before. For various reasons even the most dedicated non-library visitors will find their way to us. If nothing else, the curious will find us by pushing some buttons. Certainly access by electronics to inventories of resources allows users to design better strategies for getting at these resources. Users seem more inclined to use a library when they have data about its holdings before they set out for the stacks.

But beware. The response to the problem of text access might be the same as to the ownership of a personal computer tied to a local area network—the more that files can be accessed by the remote terminal, the more the users want. If they can have access to the indexes why not to the text itself? (The only way we might see more users in the future might be through the videophone.) While the amount of electronic text that might be available for many years will not come near outweighing the paper text, if it is there, the users will want it.

As the user's expectations for text delivery through the hole in the wall rises, electronic journalism in research may come faster than we expect. And if this is too expensive, digital disk recordings may well provide for distributed storage. Or maybe we should expect whole new patterns of gadgets and delivery systems—facsimile from digital storehouses distributed according to some geographic economy of scale, separate from indexes distributed in some other fashion, transmitted along short but powerful telecommunications trunks, through an agency we used to call a library. When the users see the prices to be charged for access to electronic journals, they will undoubtedly assume that there will be the traditional agency (the library) to provide that which they cannot afford. Are we prepared to spend materials money for access to, rather than ownership of, text? We may find justification for passing the cost on to users and their departments, but this would still leave the campus with a problem.

Somehow the money has to be transferred to the publishers or the printers or whatever you want to call the producers of electronic texts to keep the disciplines alive. And then how about access to the millions of pages of hard copy that we already own? I remember an experiment in facsimile transmission between Davis,

California and Reno, Nevada. The electronics worked very well: a quarter of a day to transmit an article from one campus to another—and two and a half days to find the user! In the future the text will be delivered directly to that person through his hole in the wall into his computer with the timer attached to it to record while he is away.

The dimensions of time and distance take on new meaning for the relationship between users and information resources. Except for maintenance and upkeep, computers and telephone systems do not have to shut down. Getting at the computer terminal at home in the wee hours of the morning when one cannot sleep is almost exciting enough to make insomnia desirable. There will be demand for the online index system to be available around the clock. And, of course, to the electronic communication system, properly designed, it makes little difference where the signal comes from or over how long a distance it travels. You can expect the phone bill to go up, however. And we may expect pressures for new patterns of library interaction through electronic communication.

One of the most powerful capabilities of the kinds of electronic systems we might build, is the potential to create "virtual" libraries from dispersed resources. One of our toughest jobs as librarians might be the design of interactions among our various files for our users to access without their having to leave home or office.

The "hole-in-the-wall" concept sharply focuses the users of the electronic information systems on access; that is what they care about. One cannot long stay enamored with an information gadget if there is too little coming through the network. Access should be our focus, too. Organizational arrangements on campus, if not throughout the nation, and the protocols for describing resources and for searching files of data about resources, had better be put into place which will meet the users expectations. This will put quite a strain on our traditional formats of machine-readable data, on index terms, on the form and style of display of information. Users will expect easy, one-button searching through a combination of files describing information resources.

Our isolation inside the boundaries of our profession, surrounded by AACR-II, the ALA filing rules, LC and MESH headings, and the like will be hard, if not impossible, to maintain. We are no longer center-stage alone as a universal campus information resource. As I said, the number of stakeholders in the campus information game is increasing, and the need to relate to others with information handling goals is made more imperative as more groups go online. AACR-III had most likely be a completely new set of protocols designed for computerized inventories of all sorts of information—or we are out of the game. To change the standards and conventions which have made our profession will be extraordinarily difficult.¹¹

In the future access and the ability to feed the electronic circuit is likely to have more meaning to the measure of significant quality of a research library than the index of our size. If the "virtual" information resource is more meaningful than the real holdings of information resources on a campus, how will ARL achieve a ranking of institutions?

There are many other issues. Security in an electronic system is difficult to

guarantee. We will have special design problems to consider in order to stymie monitoring of individuals' information searches and electronic reading interests. The new technologies provide some interesting possibilities for conservation and preservation. Maybe machine-readability will reduce the rate of rise of the volume of paper in the stacks. But there are still problems of preservation of magnetic and other material; do not carry your American Chemical Society electronic journal through airport security systems. And nothing has been said herein about people problems—changing job content, training and retraining of both staff and users, and adopting the cottage industry concept for some library work, among other things.

In my view, the online catalog is merely a manifestation of the blossoming of the information age on campus. Sooner rather than later higher education institutions must accommodate to basic changes wrought by the blossoming of the information sector of the post-industrial society. The campus, and the library in it, will face absolute demands for new ways to access and use information and data. Time and distance of users from the resources will take on new dimensions. Information actors on campus will increase and will have to develop new information handling processes. Their organizational relationships will change. All will require a new electronic infrastructure on campus. This poses a series of problems for all, in the areas of:

- mission, goal, administration and finance for universities as a whole;
- structure and content for the performance of librarianship, systems design, information science, and all of the disciplines which rely on information resources for their practice;
- research and study strategies for students and faculties.

It may well be that we are facing the creating of a new paradigm for higher education and library and information science in its service. If so, an era of enormous disruption for us lies ahead. Intellectual and economic vested interests usually let loose of old traditions and paradigms slowly, and not without a lot of argument.

Sholem Aleichem paid a lot of attention to tradition and the break up of tradition in his stories. I like Leo Rosten's information science version of the new tradition. He tells the story of the Orthodox Jewish gentlemen who went down to Miami, from Brooklyn, for the first time. He went into a motel and signed up for a room. As he walked in, he reached up to touch the mezuzah—and it was not there. When he complained to the porter, the porter said, "Not to worry, we have a master mezuzah on the roof." The moral is clear if you want to go into the information business!

References:

1. "The hardware revolution in the phone business." Business Week, 2212:66-74, November 6, 1971.
2. Shank, Russell and Norwood, Frank. "Telecommunications: prospects for research libraries." In: Minutes of the Eightieth Meeting, May 12-13, 1972. Washington, D.C., Association of Research Libraries, 1972. pp. 2-9.
3. "The computerization of Carnegie-Mellon." The Chronicle of Higher Education, 26:6-7, March 30, 1983.
4. "Brown builds computer classroom." ASIS Bulletin, 9:8, February, 1983.
5. "Case homework to go paperless." Computerworld, 17:13, March 21, 1983.
6. "80% of Stanford faculty will have micros by 1987." Infoworld, 5:25, February 28, 1983.
7. "Online databases show growth amid changes." Information Management, 17:15-16, March, 1983.
8. "ACS journals to be available on-line." Chemical & Engineering News, 61:7-8, April 11, 1983.
9. "California considers computer-literacy funding bill." Infoworld, 5:17, April 20, 1983.
10. "Colleges struggling to cope with the computer age." The Chronicle of Higher Education, 26:1, March 30, 1983.
11. Cochrane, Pauline A. "A paradigm shift in library science." Information Technology and Libraries, 2:3-4, March, 1983.

RESEARCH LIBRARY ADMINISTRATION IN THE ONLINE ENVIRONMENT

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The phrase "online environment" may be considered a generic term to describe the issues of the information age which together will influence university libraries over the next decade. Technology is the dominant variable, and the most exciting, but funding constraints, staffing and collective agreements, organizational structure, and the university itself—its planning, priorities, and traditions—are all powerful determinants of the libraries' services, systems, and collections.

Research libraries in Canada have followed rather independent paths in system development; there is now and always has been a very strong premium on local autonomy. Such a philosophy is not surprising when you consider that Canada is a country with intense regional identities. The general thrust toward local systems with local control, linked regionally and nationally, is becoming technologically and financially feasible and is in keeping with our national tradition and character. There has been world class system development work done in Canada, as I am sure you appreciate from the demonstrations here today.

Funding

In Canada education is a provincial responsibility. With respect to funding, the Federal Government makes a significant contribution to post-secondary education; in 1983-84 it will deliver transfer payments to the provinces of almost four billion dollars. These payments are a matter of contention between the two senior levels of government; the Federal Government may in fact further reduce or eliminate them. In addition to transfer payments, the Federal Government supports research and scholarship directly through granting agencies such as the Social Sciences and Humanities Research Council of Canada (SSHRC).

All levels of government are attempting to exercise restraint, and in addition to monetary implications, there comes with restraint increased apprehension that governments will interfere in the autonomy of universities through such devices as contract research, manpower training plans, or line item funding. Funding is short term, typically one year and uncertain. Over the next few years there is little reason to expect largesse and considerable reason to expect demands for increased productivity and/or cutbacks.

Within the university, the library competes for funds with other units. Equipment needs to be replaced and maintained, reductions in capital expenditures and increased enrollment have strained physical facilities, teaching loads have increased, and places are not available for junior tenure track faculty. Some faculty find these problems more an impediment to research than any real or perceived library deficiencies; there is much to be proud of in Canadian libraries—with respect to collections as well as systems.

The demands are, however, well known. Acquisition budgets are strained; in the Ontario universities, the expenditures on acquisitions from operating income declined 21.6 percent when measured in constant dollars between 1976-77 and 1981-82.¹ This may be misleading because funds come to libraries from sources other than operating budgets. Nevertheless, acquisition fund allocation, particularly the book/journal split, gives every indication of becoming more vexatious. While there is overwhelming demand for serials, there is cognizance that the Library, specifically the local book collection, is the research tool of importance to the humanities—albeit augmented by collection sharing and interlibrary loan. Students under pressure for high grades are agitating for extended hours, more duplicates, and more study stations.

Notwithstanding the immediate problems of books and serials, or space, or preservation, or perhaps fragmented access to collection records, our users have further expectations of the Library. In meetings with academic departments, librarians are asked if software can be acquired and processed through normal library procedures, and if the library can provide hardware and staff support for use. Users look to the library as the information processing and distribution network on the campus. For those of us who do not have distributed access to collections, faculty and students ask when it will be available. They ask librarians to inform them so that they can argue intelligently before budget committees for online systems for the library. The level of computer awareness, and to some degree computer respectability, particularly in the humanities, has grown immensely in the past year. Desk-top computers are proliferating; individuals expect such services as word processing; and, electronic mail is replacing the telephone, interoffice memo, and regular mail service.

Proposals for such relative technological innovations as publication in a data base format rather than in a hard copy journal are routine. As we heard at ARL last fall, the solutions to attendant problems, for example, "who pays" are still outstanding. It is worth mentioning that the Social Sciences and Humanities Research Council of Canada recently published a report entitled Aid to Scholarly Communication.² The report addresses the rapidly rising costs of publication and the need for faster and less expensive dissemination of scholarly material. It is proposed that by 1983-84 the Council reallocate its support for scholarly publishing, that is, funds in excess of one million dollars be diverted from traditional publishing to innovation projects. The reception to the report has been negative not only because of the magnitude and abruptness of the proposal but also because of the fear that costs would be transferred to the user thereby reducing communication and accessibility, because foreign subscriptions may be lost, and because there is concern that some Canadian scholarly journals would not survive without SSHRC support.

Computer technology is diffusing through the university. Concurrently, many universities are facing financial problems. Within the funding agencies, within the university, and within the library, organizational slack, that is, the difference between resources and demands, has diminished. Reduced slack introduces instability into an organization, increases power bargaining for resources, and generally operates against significant technology improvements without short term paybacks. Retrenchment management has prompted a need to assess institutional performance and to work toward some generally accepted way of making assessments of quality and establishing priorities.

Libraries, like other units on the campus, must be prepared to account for the use of their resources and for their productivity with those resources. The literature is replete with articles on measuring library effectiveness but there is no model which leads to creditable analysis. The public libraries have done more work in this area than the university libraries.

Turnkey systems can be bought in the marketplace and the source of funds, given diminished slack, may be reallocation of the university budget and of the library budget. With respect to uses of funds, it is not unlikely that librarians will find it advantageous to cost various functions and collections. There is a dearth of persuasive evidence that costing is done well in libraries. This is unfortunate, not in the least because acquiring and implementing new technology may well rest on cost-benefit analysis, whether, in fact, the source of funds is external fund raising, user fees, budget reallocation, internal generation of funds, or some combination thereof.

Collective Agreements, Staffing, Structure

Labor relations and organizational structure will continue to be variables in the online environment. In almost all Canadian university libraries, the librarians are members of bargaining groups or associations. Local practice varies: many of the bargaining groups are not certified under legislation, most include librarians and faculty in one bargaining unit. Again, local customs vary, but it is not unusual for the faculty association collective agreements to be administered overall by the office of the Vice-President Academic and within the library by the University Librarian. Other professional, administrative, or support staff unions may be administered through the Central Personnel Office and the Library Personnel Officer. Whether or not collective agreements are in place, governance remains an issue. Arguments have been made that an online system will affect librarians' jobs, and therefore no system should be acquired without informed consent of the majority of librarians in the collegium. Let me say at once that this approach is not typical in Canadian libraries. The more usual approach is that in each institution a small group of highly knowledgeable and committed individuals is responsible for development, evaluation, and implementation of systems.

There is some agreement that more specialist positions will be required in research libraries. According to the ARL Spec Kit on Specialty Positions in ARL Libraries³ two-thirds of reported specialty positions do not require an M.L.S. degree. In filling these positions, vacancies do not always occur in appropriate bargaining units; flexibility in moving positions between bargaining groups may be restricted and this could reduce the ability of the library to respond to opportunities. It is, however, always appropriate to remind ourselves that job security for present and future members is the legitimate goal of any union and is the dominant goal of many unions in these times of high unemployment.

With integrated data bases distinctions between traditional units blur, but distinctions between levels and categories or staff may become more pronounced. The effort required to integrate and coordinate the work of academically well qualified subject librarians, non-librarian specialists, and generalist managers, all with multiple career ladders, will be substantial.

As well, if positions are eliminated because of base budget cuts and attrition, as opposed to layoff, is the vehicle chosen, the ratio of librarians and specialists to support staff may increase because the turnover is often higher in the support staff establishment. In Canada the librarian establishment is typically 20 to 25 percent of total staff.

Within the university the concept of integration of telematics is developing. Adams, in a recent article entitled "Information Technology Impacts on Planning Issues and Processes" says that "Some authors (Plice, 1981) suggest organizational structures based on the concept that information is a fourth basic organization resource to be managed along with people, money and facilities. The implication of that concept is that the full scope of telecommunications (voice, data, video), computing, data bases, and libraries would be brought under a single organization unit."⁴ Adams points out that the authority given to such a unit can vary from complete control to that of promoting communication. How one views such a development may depend on one's perception of the political strengths of the various units. I suggest, however, that there is at least the potential of dissonance for librarians. Academic status is a strong master and librarians have fought long and hard to become equal members in faculty associations and to identify themselves with the teaching and research functions. Chief librarians have shown a distinct preference for reporting to Vice-Presidents Academic or, to Presidents. Faculty guard their influence over the library. Chief Telematics Officer, whether or not at the Vice-President's level, may invoke to some an image of a self-proclaimed administrator rather than that of an individual participating in the intellectual work of the university. Be that as it may and whatever the organizational structure, there has to be strategic planning to ensure coherent integration of communications and computers. A strong library presence must be sought and gained. Librarians, for one example, are committed to having their integrated online data bases accessible on equipment across the campus and at off-campus teaching sites.

The online environment is bringing dramatic changes to libraries and to universities with respect to organizational structure, staffing, services and use. Notwithstanding, the fundamental responsibility of the library to provide services and collections to support undergraduate programs, advanced study, and research remains.

References:

1. A Financial Analysis of the Ontario University System - 1982. Toronto, Ontario Council of University Affairs, December, 1982. p. 18-19.
2. Aid to Scholarly Communication. Report to the Social Sciences and Humanities Research Council by a Joint Committee of the Council and Advisory Academic Panel. Ottawa, Social Sciences and Humanities Research Council, 1982.
3. Association of Research Libraries. Specialty Positions in ARL Libraries. SPEC Kit 80. January 1982. p. vi.
4. Adams, Carl R. "Information Technology Impacts on Planning Issues and Processes." In New Directions for Institutional Research, no. 35, September 1982. p. 68.

REACTOR PANEL

MS. BECKMAN: This is the final part of our program. Each of our panelists will give a brief presentation responding to the day's program, and then we will have reaction among and between the panelists. We will begin with Joe Rosenthal, from the University of California at Berkeley.

Remarks by Joseph Rosenthal

MR. ROSENTHAL: Thank you, Margaret. My remarks will be fairly unstructured and quite brief. I am reminded of a story I once heard about Rosalyn Tureck, the exponent of J.S. Bach on the piano, who was playing one of the more complicated Bach fugues at Town Hall some years ago. It got more complicated as it went along, and suddenly in the midst of the recital she threw up her hands and said "too many voices". That's the way I felt about this morning's presentations.

I would like to emphasize a few themes of what we have seen and heard today. One point that I believe has been implicit is that the volume of information available in research libraries and to the users of research libraries will increase dramatically. And with it will come a need for guidance and selectivity, through specificity in access in terms of bibliographic access that we have had in limited ways before, through expansion of keyword searching, Boolean operators, linkages of data bases. This need for guidance will put a premium on trained librarians, on the potential to acquire effective means to exploit the knowledge that is and will be available to us. I would echo and extend Nancy Brown's comments on specialty positions in libraries, in that I believe there will be a greater premium placed on subject knowledge and, to a significant extent in our multi-faceted, multi-purpose, and comprehensive research libraries, we will behave more like special librarians than we ever have before.

The market of users who will be looking for more information and more sophisticated information products will expand as our institutions bring in people who have grown up accustomed to living with and using computers. We will face, as both Russell and Nancy said, substantial financial implications, in part because of this newly arising demand.

There will be, I think, a lessened but not eliminated reliance on traditional cataloging, because the information that is available will be less and less tied to the physical book. Already we are accessing journal and report literature in an online environment. We will certainly be responsible, some of us, for access to machine-readable data files other than bibliographic ones. Although not necessarily an immediate part of the online environment, I think the importance of pictorial and other audio-visual library materials will increase in our research libraries.

In connection with the comment on lessened emphasis on traditional cataloging, I was horrified even at the reference by Russell to AACR3.

The financial needs for the electronic environment, which have been expressed

only in a very preliminary and cursory fashion, come at a time when there are not only the traditional needs of libraries, needs that we have all been looking at for years, but also when there is the emergence of the preservation of library holdings as a critical set of problems and, in addition, a substantial and very major capital investment need.

In all of this I see the functions or mode of the research library undergoing change. Some of the characteristics of this change are that we will become a more active and "outreach-oriented" agency; and that we will operate as a clearinghouse for information access to literature data bases, to other libraries and depositories of information, and to textual and statistical data files. I suspect that we will become an active link in the world of scholarly communications. For this kind of role, even though it is directed to the functions of medical information and communication, I would suggest that you read the Nina Matheson report. It is very constructive and is applicable to our institutions as well as to medical libraries. If the research library does not successfully assume these roles and their characteristics, I believe it is very likely to become a museum of books, manuscripts, and archives, for if we do not fill this vacuum, it will be filled by other agencies.

Turning a little to the financial implications, I was very interested in the iNET demonstration where Cynthia Durance stated that in the next phase, the marketing phase, charges will be made to the provider of information rather than to the recipient. Of course, all of this can be shifted in complex ways and through various protocols, but those protocols have to be devised and some kind of equitable basis for funding and for re-charge will have to be set up. There will not be one basis, there will be many different situations.

There will be a heavy involvement of political activities in persuading the academic institutions, of which most of us are a part, that support for this extended and expensive world of information is an essential ingredient of the learning process and constitutes a legitimate and necessary library function.

Nancy Brown mentioned productivity. As we all know, the library business is very labor-intensive. I am not here to make a plug for OCLC, but I was impressed at the demonstration of the Micro Enhancer since it seemed to have the potential—this seems to me a relatively rare instance—of a technological device or application in libraries that could possibly increase productivity. There are other applications that have done so, but most of the machine-based applications that we have instituted extend services, make them speedier, perhaps more accurate, perhaps less tedious, but they have not contributed substantially in many instances to productivity increase.

In many academic institutions, including the one with which I am associated, the concept of information management and the responsibility for information management is diffused or virtually non-existent. That is not uniformly true, but it certainly is in a lot of places. Despite all the apprehension that may have been implicitly and explicitly transmitted in what you have heard today, I think that the role of research libraries in guiding, influencing and exploiting the potential for the information resources that we have and will have available is a most exciting one and that we are as well or better qualified to carve out a role in this scene as any other unit in society.

Remarks by Alan MacDonald

MS. BECKMAN: Thank you very much, Joe. I am now going to call on Alan MacDonald, Director of Libraries at the University of Calgary.

MR. MacDONALD: Thank you, Margaret. I suppose it is appropriate as the 'local' involved in this event to welcome you all to Southern Alberta and to Calgary. In view of this morning's demonstrations, I should like to tell you that Banff is where the Alberta Government Telephone Company sends all the old telephones equipment to die.

Some of you may have traveled through Calgary on your way in. I would like to characterized it for you very briefly before I get into my remarks. Some of you may be aware of a man named Thomas Enders. Before he was "stabilizing" Latin America as the United States Undersecretary of State, he was the United States Ambassador to Canada. He said of Calgary that it was his favorite Canadian city. It was his favorite Canadian city because it was such an American city—no, it was such a Texas city ... but nowhere near as anti-American.

I must say how pleased I am as a practicing Canadian and a non-ARL member to be a member of this reactor panel. As I cautioned Margaret earlier, you should realize that even when they send me in as relief, I am inclined to pitch nine innings, but I hope I will not go on too long and contribute to "melt down."

My first reaction to issues that we have heard today is essentially to think of a great many more. The issue of the online environment is obviously much more than that of the online catalog. My notes here say, "Shank, only a symptom!" I think it means that Russell thinks it is only a symptom of the issue. We in libraries tend to submerge ourselves very much in this particular aspect, but if we would look at the real issues we would find that not only do they go well beyond the library or our institutions, but our activities within research libraries now go very much to the fabric of economic and cultural development within our own countries.

Some of the issues have been well discussed. Somebody talked about the capital cost, the realization of the incredible capital intensity of the automated environment. Our institution has just had the benefit of a substantial donation of computer equipment. As is usual, it requires 10 to 15 percent of the capital cost each year to keep the machine up to date, plus another substantial provision for obsolescence, for replacement in a reasonably short period of time. There is now the realization that if you look the gift horse in the mouth, you will find his teeth are gold and that you are going to pay for them.

The issue of proprietary rights has been mentioned and the expectation for compensation on the part of almost everybody these days. I think Russell mentioned the ISI development of their SCIMATE programs on microcomputer floppy discs, to provide access to various databases from the major vendors using a single protocol. We and others are seeing in this particular example, in the philosophy of ISI and others, a phenomenon which some of you may find hard to believe: that is, the possibility that before this century is gone, copyright law will also be gone. It is likely to be replaced with two things. One is a much more rigid development of the

concepts of contract law. The other is the increasing technical ability to deal with things such as registration of software, of monitoring who is using what, the ability now for software to be registered for use only by the registered user on a registered computer. If you give it to your neighbor, they will be unable to use that particular item on another machine.

The costs of availability in our own institutions used to mean keeping the library open late, leaving the lights on, and maybe having a security guard at the door. Now it also means having some people in the computer center, having the equipment available for the longer and longer hours that our students are coming to expect. I suspect the situation exists in many ARL institutions that exists in my own, that is, students have again discovered that a university education actually has something to do with eventual employment. Most of our students are very serious; the walking wounded of recent years have been let go and have been replaced by many who are far more serious.

No one has mentioned the very mundane but absolutely fundamental problems that most of us face—the inadequacy of the traditional physical structures that we occupy. We live in a world of "Metcalfian" buildings that have tended not to have consider the potential for an online environment in the pursuit of the concept of so called flexibility.

Somebody mentioned, briefly, something that requires a great deal of discussion—the basic problem of redistribution of financial burden as one moves away from the traditional, altruistic, collectivist view of the library as "We'll do it for you and everything is free" toward a confused area where the costs are being reapportioned. When the American Chemical Society publishes their electronic journals, will users of those journals expect the library subscription budget to pay for their access to these journals?

The economies of scale, which we all have talked about and that were discussed in Dick De Gennaro's paper, have lead to a fairly heavily centralized automated environment. We are just starting to back up now, as many of the suppliers have, certainly in this country, come almost to the point of pyramid selling, with maintenance of cash being the overriding requirement for the advancement of the online systems. I believe that kind of economic imperative has tended to skew things and has put incredible political pressure on our institutional decision-makers with regard to library systems, often leading to reallocation of resources for reasons that had nothing to do with real library issues.

I will not comment on the technological issues, because I think many of them have been addressed already today. I will only say that there are many complex matters in this area that raise difficult issues which will occupy the time of thinking academic librarians for many months to come.

There are some other issues that are also of great concern. One is the technological ineptitude at most decision-making levels. I include not only ourselves, but also University Management and Government at this point. Pride of ignorance is something that still exists in the library profession. Coming from the East Coast, I am reminded of the age of wooden ships and iron men when a whole generation of seafarers were blind to the onset of steam and iron on the sealanes, the wooden ships rotted and the iron men were unemployed.

There is the issue of staff competence which was not mentioned; their ability to deal with these new technologies and with the general issue of resistance to change.

There is another issue, on which there is some disagreement. This is the concept of de-professionalization of many library processes. In the 19 years since I graduated from library school, with one exception, nothing that I did in my first year of employment is still deemed to be professional. We are seeing the growing development of cataloging by nonprofessionals or should I say by non-library school graduates. For example, my institution has only two professional catalogers and last year we added 71,000 items. I believe we shall see the development of cottage cataloging industries. I see no reason, in spite of the unionized environment that Nancy talks about, to prevent the establishment virtual cataloging operations based in home arrangements using remote access terminals, being paid by piece work.

I believe the whole question of our role as information intermediaries is being greatly affected by the technologies. There has already been a blurring of our role as information handlers in the on-campus power struggles. We are talking about librarians, we are talking about computer scientists, we are talking about the kind of person which one of my colleagues calls an "informaniac," we are also talking about a lot of amateurs who are playing in the information game. In many instances, the unfortunate thing is that some of the least competent players are in the library, and they are the ones who will be called on to defend the participation of the library in the system.

We have in this country several examples of experimentation with single or consolidated organizational units covering libraries, computers, automation, communications media, and a variety of information delivery methods. Interestingly enough, I happen to have worked at two of these institutions, both of which failed. In one case the ideas were before their time. It was broken by a recalcitrant Chief Librarian who was not prepared to report to an engineer and a faculty whose technological perspective verged on Luddism. The other failed because the creator of the system was so successful, the university just kept giving him more and more responsibilities, and eventually the system collapsed of its own weight.

Bibliographic issues have been alluded to, i.e. the basic issue in the decentralized automation environment of standards versus local option, and the possibility that AACR 2 and a few other such works may have become religious irrelevancies in our library community because of the nature of the developing machine environment. Many of our colleagues have grown blind to the essence of user requirements which are most often quite simple.

We must deal with what may be called the paradoxical nature of our users. On the one hand, we are dealing with a generation of information or computer "groupies" who have had tremendous involvement with these machines and their attending capabilities for the last number of years. They are very technologically sophisticated and expect a real-time response all the time. (I was thinking of real time this morning; I was watching the news and after a few minutes I realized that I was watching the news from Atlanta, Georgia—the Marvels of satellites!) On the other hand, we also have a generation of new illiterates, who really may be outside the main stream of what we deal with in academic libraries, and who really cannot cope with either our traditional methods or the sheer mass of information that we can present to them.

We cannot ignore the information poor whom we are already starting to see, those who do not have access to the information or the money to acquire the information or the competence to use the information should they get access.

And of course there are the technologically fearful. Some very interesting work has been done recently on why people do not use keyboards. I have said for nearly ten years that one of the reasons that computer terminals had not, until fairly recently, penetrated into many sectors was something very fundamental: that was the belief on the part of many executives and professionals, most of whom are male, that keyboards were women's work. I believe some of the work that has been done recently, particularly the introduction of management information systems in large corporations, has reinforced that unfortunate fact. I saw one article that suggested, "We have made some development. In this particular firm, the men don't mind putting in the numbers, but the women put in the letters."

The second factor relating to the consumer is the whole concept of distance, or more correctly, the disappearance of distance. We are seeing migration of access points away from central facilities—these cathedrals of knowledge that we built—to faculty offices, to conferences, to homes, to John Black's briefcase, to wherever. In many provinces in this country, and I am sure in many parts of the United States, distance education operations are well established. In Alberta there is a university whose sole function is to deal with students outside its own facilities. It only has no classrooms. It has an industrial warehouse in the city of Edmonton and deals entirely by wire, by telephone, by television, and so forth.

One of the concerns that I would have with the hole in the wall phenomenon that Russell Shank mentioned is the potential, particularly with interactive video and such, for social isolation. Last year, one of my colleagues suggested that the eventual motto would be "in every home a hermit." But there is nothing new in this search for independence. All we have really done is changed the equipment. In the 1940's, the freedom was envisaged by Freemont Ryder as the microcard library in a shoe box. Now it is presaged by Drexel's MacIntosh Apple.

Nancy mentioned the issue of resources. We talked about the almost limitless formats this morning. Again, the issue is going to be how much of the alternate forms are centralized. The Park Report on Scholarly Publishing that Nancy mentioned envisaged a super database of technical papers and so forth that would be managed centrally and therefore be made available to all comers. A stronger movement, I believe, is the tremendous move towards decentralization. Not only traditional decentralization through the portability books, but also decentralization of things like COM fiche, laser fiche, optical disks, personal down loading, and something which I heard only last week, as part of my duties with the University Press: we are bidding on the publication of a major reference tool that is to be produced in this country, and we have been asked to bid it on the basis of a print edition and a floppy edition.

Finally, a most basic issue, in my view, is a political issue. The generic technology appears to transcend boundaries and jurisdictions. My belief is that the truth is quite opposite. The online environment will come inevitably into conflict with growing domestic, political, cultural, and economic imperatives. There are national information and patent policies. There is a tremendous movement towards secrecy, the decision of countries not to make information available to each other.

There is a real search for technological superiority. I am one of those who believe that technological superiority equals economic superiority, which equals political superiority. It is very interesting, there is a new organization in the United States which has just come on the scene whose function is to protect American supremacy in computer technology. It is the Microelectronics and Computer Technology Corporation which has appointed as its first president, Admiral Bobby Ray Enman, the former deputy director of the Central Intelligence Agency. It has been given a hundred million dollars in seed money for its first year by its founders, who are twelve of the major American computer companies. Many countries, not just those in the Third World—which, I believe, have some real reason in this online and information environment—have a growing fear of what might be called "informational imperialism."

The political thrust these days is very much that to decentralization. There is somebody in this Province, I cannot remember who it is, who has started using a word to describe the situation that was so well described in Dick De Gennaro's recent paper.* That is the concept of "subsidiarity." Subsidiarity is pushing the decision-making and the control to the lowest possible level within the political structure, whatever that political structure might be. While this brings about a danger of feudal localism, there is the obvious political fact that many people want it down there. The problem is that many of them do not realize that with local control comes local responsibility, and with local responsibility must come fiscal responsibility.

In this country, there are some additional peculiarities, since we are a small country. Somebody once said—I think it was our Prime Minister—that when the elephant gets into bed with the mouse, it is the mouse that is very careful. The additional Canadian issues when dealing with the online environment are cultural sovereignty, transborder data flow, the faculty to function in two languages (or attempt to), the tremendous strength of provincial jurisdictions (probably we were doing subsidiarity a hundred years ago) and other such things that I will not bore you with. But the message is that this situation is very, very political. If we believe it is only a library issue, we are going to miss a lot of the point and maybe the boat.

But as I said to Margaret, since I am used to these "political" speeches, I will not leave on a heavy note, I will just leave. I have a story about the issues of decision-making and technological matters. There is in my former Province of Nova Scotia an island called Cape Breton, which is sort of a West Virginia with ocean frontage. It is very much a mining and obsolete industrial area. During the depression, when the upwardly mobile were seeking to arrive at the poverty line, there was a debate in one of the town councils as to whether the community should add an electric chandelier to the town hall. There was on that town council a local character known as Angus Blue MacDonald (all MacDonalds have to have a number of names, because there are only about nine names that MacDonalds seem to use) who stood up at this meeting and said (This is the man who said the problem with our organization is we do not know how to get down to the brass roots.) [Laughter] he said, "I heard what all the boys have said, that we should get one of these here electric chandeliers for the town hall. I've heard those who say they got one up

* De Gennaro, Richard. "Library Automation & Networking Prospectives on Three Decades." Library Journal, V.108, no. 7 (April 1, 1983), p.629-635.

there in Halifax, and they got one over in the Sydney town hall, and that would be nice to have what those other guys got. But I also heard that some of the boys say that we should probably paint the town hall first or maybe even put another book in the school library. But I just have one question: is there anybody in the entire municipality of all of Glace Bay what knows how to play an electric chandelier?"

Remarks by Stuart Forth

MS. BECKMAN: Thank you, Alan. Now we will hear from Stuart Forth, Dean of Libraries at Pennsylvania State University.

MR. FORTH: Thank you, Margaret.

I have not learned much in my career in academia, but I learned early on, always speak first. I would say, when one speaks last, everything has been said. However, I felt very strongly that Mr. MacDonald, in particular, was making rather pointed, and, I thought, ungracious references to me—

(Laughter)

—in the course of his talk—that librarians had the pride of ignorance. Has it ever occurred to you, sir, that maybe it is like Milton's virgin in comus, and we are armed in innocence?

(Laughter)

That, at least, is my role as I deal with all the computer experts on my campus.

On the online environment. Having heard the talks, and read, or at least scanned, the enormous amount of material on it, I want to say only that I am reminded of Margaret Fuller Ossoli when she made her pronouncement: "I accept the universe!" And Carlyle, of course, said, "Egad, she damn well better." Well, that is sort of the way I feel about the online environment. I accept it. There it sits. I think I can live with it. But I would remind us that as we listen to talks to which we are supposed to react, that we are all behaving like professors of English who, when asked to review a book, leap upon the book, the title, and the author, and use it only as a departure to discuss what they want to talk about. And I think that is a legitimate way of reacting to two very good papers. In other words, we can ignore Russell and Miss Brown and go on and share our own opinions about the situations.

In fact, I would remind us that we are indeed academic librarians, and I think perhaps sometimes we do not put enough emphasis on the adjective. Russell touched on it, as did Miss Brown: what is the online environment doing to learning, or is it too soon to say? Are we a society that is so bemused by information that we are not yet moving it towards knowledge, much less wisdom? And I really think about this as I meet my young collegiate faculty, who have all the smarts in the world. I give it to them. I defer to them. I may murmur gently and in Christian charity something to the effect that maybe I have a little wisdom. They, of course, pay no attention, and we go on as before, with me being loving and caring until such time as I can really, ah....

(Laughter)

I am reminded of a colleague I had at another university, who spoke ten languages. The problem was, as I came to know him quite well, along with those people who understood at least three or four of the languages he spoke, that he had nothing worth saying in any of them. This is something that I think we do have to think about. We can become extraordinarily adroit in marshalling data, as we call it, into a manageable form. But what happens after that? This is coming along at the very time when, at least on the south side of the border—perhaps even on the north, though I tend, perhaps in ignorance, to revere the Canadian universities more than I do some of my own, in part because I know my own so well—we are seeing, I believe, a very serious decline in the quality of higher education. In the United States, an appalling national policy was adopted and articulated in the mid-'60s—a dreary period in all of our lives. That was that everyone has a right to a higher education. This is the most arrogant nonsense that I have heard since the Declaration of Independence.

(Laughter)

But it is serious. We have tens of thousands of students in our universities that have no business being there at all. They are simply taking up room; they are learning very little. When even such flagship institutions as our Ivy League schools who are represented here have to have remedial courses, or as we call it at Penn State, "remediation," this says something to us. These youngsters may be terribly adroit at Pac-Man, they may be very clever in grasping what the computer is all about—indeed, they patronize me and many of my colleagues—but I am not sure yet if this is going to help higher education.

If we go on as we started, the library again will be, as Joe said—or maybe it was you, Alan—simply a "museum of the book". We do have a certain curious dichotomy in the media we are talking about. I went to the Library of Congress the other day for a one day session on preservation and conservation—called in my library "Pres/Con." There we talked about saving the treasures of the past. We have heard much here and everywhere else I go about RLG and ARL and the RLG conspectus on collection development, on sharing resources, and as I listen, I think we are talking about the same old stuff. We are talking about whether or not I buy the Journal of Mixo-Lyidian Linguistics, thereby relieving Dick De Gennaro of having to buy it, or if I made the mistake of buying the Burney papers, neither Dick De Gennaro nor Joe Boissé need buy them, this kind of thing. But all this maybe stuff that I suspect is going to be less and less used as the quality of our higher education deteriorates.

And I think it is deteriorating. I no longer teach, but I talk to students; I read the letters they are writing; I read the letters applicants for jobs with me write. They are astonishing. If they are addressed directly to me they come directly to me. Having taught English I once, I sit down with my red pencil, make all the corrections, and send them on to the Personnel Officer. So far, she has got the message that this is not someone the Dean of Libraries much wants, whatever the search committees may say about him.

These are things that really bother me. They are related, I believe, to how libraries are going to handle their own computerization. I regret to say that very little in the library literature addresses this. But if we are indeed going to move to

an online environment, and we are—I am certainly doing it—what is going to become of all those bodies—those paltry few bodies—I have in my library? We can already measure how they are being used.

There was an unpleasant, ugly incident at my university that perhaps has happened to you, when you have a subject bibliographer who appears to try to stir up those faculty whom he serves. In this case, again, it was the Department of Mixo-Lyidian Language and Literature. This dude went over there: "Forth won't do this, Forth won't do that. What is needed is some faculty expression of distress over what he is doing to our program." So comes now a round robin letter signed by everybody—perhaps written by my person.

(Laughter)

The rules that govern academic administrators at my university prohibit an administrator from discussing a faculty or staff member with anybody else except another, defined academic administrator. So I could not discuss the problem (which was my person) in this incident with the faculty in the Department concerned, though I knew everyone of them. None of them had talked to me, none of them had said, "Have you realized what is going on? What have we done to you?" Nothing like that.

I did get the chairman of the Department over. A charming little incident. He said, "I will bring a couple of my faculty." And I said, "If you do, the three of you can sit in my reception room and I will get on with my work. I won't talk to them, I want to talk to you." He came along. We had done a quick and dirty use study. Using our computer system, we selected all of the classifications that these people could possibly use, not only in the Language and Literature Department, but of those used by political scientists and, as I recall, by people in the College of Agriculture. Whatever the case, we put all this in, knowing what the total count of the books was, and we checked back for about five years on how much of this collection had been used. Less than three percent in a five year period!

With that we could also examine, as we did, the data published by the university on the annual publications of that faculty—how many journal articles, how many books, how many book reviews. Well, it was a very enlightening experience. And while I happen to think that in my administrative style I give new meaning to the phrase "Christian charity," I did indeed find the possibility of pulling the rug out from under that faculty very satisfying. This is degrading. A man should not feel this way toward his colleagues.

(Laughter)

The fact is, we do not have any idea how much our collections are being used, we have no measuring methods, much less have we on the quality of the use. Are we going to have that same problem with these enormously expensive databases that we are developing? I ask this in all sincerity, and I am arguing, in an O.K. sort of way, about: do we really need libraries at all? Are they going to be with us in the future? They are going to be with us in my career. But what about some young thing like Mrs. Martin? What is to become of her?

(Laughter)

We have had problems, all of us, in getting priorities for the traditional library. And one of these gentlemen touched on the fact that we are going to have problems getting priorities for the library of the future. There is a built-in institutionalized anarchy in university administration. It is one of the reasons that all of the theories of management break down almost immediately when one tries to apply them to universities. By definition, a professor works autonomously and he thinks autonomously. He was the progenitor, if you will, of the phrase "the me generation". No one's work is important except his! And that may be one of the things that makes him good, as a matter of fact, his absolute conviction that his work is worth it.

The departments of instruction have made a thrust towards autonomy, and so, of course, have the colleges. This is complicated by the kinds of bureaucracy that developed in academia that have their own priorities, which are always met first. How is the library of the future going to function in that framework and still maintain its responsibilities to RLG in terms of collection development? Or its responsibilities to our traditional role? This to me is one of the big questions that will have to be answered in the online environment to which we are moving.

In many ways, I believe we are living in kind of a Cloud Cuckoo-Land, and the research that some of my people are doing on our own collection use bears this out. We have young men and women, young faculty, on our dispersed campuses. And as some of you know, the Penn State octopus is all over the Commonwealth, with campuses geographically removed from the main one, though it is administered centrally. Those young men and women have to do research if they are going to be tenured, and they have to publish. They have small libraries, and they are never going to have research libraries on their individual campus. So they have to use University Park. One of my colleagues did a very carefully controlled random sampling of the faculty on those campuses—it met all the usual requirements of those people that do that sort of thing—and found that 80 percent of what was used by faculty who published in refereed journals was from the central university library as their principal research source. That made us feel very good.

My colleagues are now in the process of working on the University Park faculty, using the same criteria—publishing in refereed journals and randomly selected by the best methods. All of the data are not in, but we have already discovered that less than 70 percent are using the libraries of the main campus, which is right where they are. So what are they using? Are they using information in computerized form? Are they using their private libraries? We have not quite finished—I must say I am not doing this; the credit goes to Barbara Smith, whom some of you know. It is another example of the things that we do not know about our own campuses and their libraries. How can we then address the online environment the way we should?

I like the concept of the clearinghouse. It will make us more like special libraries, I believe, and it will probably call for many fewer of us. I have been reading a fair amount recently—not for pleasure, I assure you—of Lancaster at Illinois. The more I read of him, the more I believe that, distasteful as I find what I am reading, the evidence of what he is saying, at least at my university, is pretty clear.

I do not really know what is going to happen to us, or to our libraries. I am rethinking my long-standing request for additional space. We are building a storage

warehouse with carefully controlled humidity and temperature. We plan to put about 400,000 out of roughly 1.6 million volumes in that to begin with. We think we will have no trouble identifying which ones, because everything that has been used in the last five years has been bar-coded, and so, in terms of the monographs, everything at least not taken out in the last five years. And that is another little problem. I will be fought to the mat on that by many of my people.

To conclude my somewhat rambling remarks, I believe we are in greater trouble than a kind of a positive, up-beat review of the online environment indicates. I do not think that it is very promising for the future, and I think our role should be go out gracefully, with as much style as we can, with a stiff upper lip. And, we will turn things about—men first!

Discussion

MS. BECKMAN: Thank you very much, Stuart; that was delightful. Now, let's give the audience a chance. Questions or comments, please.

MR. KREISSMAN (University of California, Davis): Hearing Stuart reminds me that I have heard ARL described as a group of hard nosed administrators. After three days on these seats, I think you are going to have to change the parts!

Stuart alluded to something that came up recently at the University of California Library Council to the effect that, as we move into the online environment, we are actually going to have at least two enterprises. We are going to have to manage the old enterprise as we move into the new enterprise. I believe this is rather taken for granted. I have heard no discussion here of how we are going to manage the traditional library which is going to go on, as Stuart indicates, for a good long period—I do not intend to bow out gracefully, Stuart; they are going to carry me out kicking and screaming—but at the same time bring in the new environment. It is a problem that no one has addressed. I am sure we have thought about it, but it has not been addressed at this meeting. I, at least, would like to have some comment on this dual role we are going to play.

MR. FORTH: I would like to say a little bit about that, because I am in the middle. We are doing both. Librarians are always saying, "Let's identify the problem and let's write a manual on how we are going to handle it." I get so impatient with these discussions that I no longer attend the weekly meetings of my department heads.

(Laughter)

There is an extraordinary side benefit to that. When I do meet with my department heads in state—that is, I arrive with my three assistant deans, and the department heads are all there—it is an interesting information exchange. I talk, they listen.

(Laughter)

There is no discussion. Or if there is, it is very tentative. Miss X will say, "Well, of

course, we know that the Catalog Department people are doing the best they can, but..." Whereupon Miss Y, the head cataloger, fixes her with a glaring stare. When none of us is there, these department heads really mix it up; I shudder to think what goes on. I only know what the results are: very, very good and detailed minutes of meetings with comments about what their concerns are, recommendations, comments on things I send them for information. And an elaborate, complicated method of handling things that to implement would take forever; we would be doing that instead of getting on with the work.

We have lost a lot of positions. We have one librarian to every 555 students. Cornell, for example, has one librarian to every 122 students; Purdue has one librarian to every 701 students (I try to keep that off my data bank). But my people are so busy handling both the old and the new that literally we have had no problem with that. Reference services are proceeding apace, but they are now using RLG, they are now using database searching, and they are using all of these techniques. They ask me, can you pay for this, that and the other thing, we say yes, and they go right ahead and do it. There is no diminution of the traditional services—and there is a lot of growth in the new areas. Same thing with cataloging. Most of our catalogers are now so deeply involved in developing computer protocols and all that sort of thing they are hardly catalogers any more. They have made an easy transition, partly because they are all young. These young people are doing the new work, and the older ones, the people we cannot retread, are doing the rather limited amount of original cataloging we do. I believe everybody is doing both. I really do—you visit their libraries, and they are doing both.

MR. KREISSMAN: That is true, but what has happened at my campus, when I meet these hard bottomed administrators, is that they always say to me, yes, but what is it going to cost? And I tell them it is going to cost you whatever you are doing now, plus. Now, that cannot go on too long, and that is where, I believe, the crunch comes. Also, if I may make a side play here, the whole question of compensation today, has come up tangentially in almost everyone's presentation; I believe this is one of the most critical questions of all. Where is the money going to come from for all these things? So I am not talking about the two enterprises; I am really talking primarily about the costs of adding the new enterprise on to the ongoing cost of the old enterprise.

MR. FORTH: It is generally agreed at my university is that I am too sensitive to have to deal with money.

(Laughter)

MS. BECKMAN: Any more Comments? Before I turn this program back to Jim Govan, I would like to thank the Program Committee, Martin Runkle and Richard Dougherty, the speakers and panelists, and all of those who helped with the demonstrations. It has been a tremendous experience for me being involved with all these very exciting and dynamic people. I hope it has been a program that has brought at least the questions, if not the answers, for the online environment.

BUSINESS MEETING

The Business Meeting convened on May 4, 1983 at the Banff Springs Hotel, in Banff, Alberta, Canada, with President James F. Govan presiding. Mr. Govan opened the meeting by introducing new and acting directors, and representatives from the Standing Conference of National and University Libraries of Great Britain and the Committee of Australian University Librarians.

Report of the ARL Executive Director

MS. ECHELMAN: I have prepared a written activities and status report for the last six months, and I will touch briefly on one or two of the items in that report this afternoon. I would be glad to discuss with you any part of the report about which you have questions or would like to make comments. [The Executive Director's report appears in Appendix C.]

I would like to start by reviewing several legislative and U.S. Federal matters. The first is copyright. The New York University case, in which the University was sued by seven publishers—suits coordinated by the Association of American Publishers—has been settled out of court. The settlement is based upon what are called the 107 Guidelines, which are a set of guidelines that were negotiated in 1976 by the Ad Hoc Committee on Copyright Law Implementation, the Association of American Publishers, and the Author's League Incorporated. While ARL is and has been for many years a member of the ad hoc Educator's Committee on Copyright Implementation, we have some serious reservations about those guidelines, and, I believe that John McDonald, who was ARL's Executive Director at the time they were negotiated, would agree that we have always had those reservations. Basically, the guidelines are constructed to be much more useful in primary and secondary education than in higher education, and for that reason it is my belief, and that of our legal counsel, that the NYU settlement has not been an advance in the issues of fair use, and classroom and reserve room use of copies. There still has not been a court test of fair use, and we do not know when such a test might occur.

The basic problems with the 107 Guidelines are contained in the sections that refer to the brevity and cumulative effect limitations. Brevity limitations, as most of you know, are: a poem of 250 words or less, a single article of 2500 words or less, or a portion of a prose work which equals 10 percent of the work or 1000 words, whichever is less. That set of limitations which are intended to be minimum limitations, but which we fear have become maximum limitations in the minds of faculty members, are in our opinion unduly restrictive in the higher education setting. The other limitation is that the article or portion of the work being copied shall be copied for one only course in the school in which the copy is being made. That may be easy for a primary or secondary school to police, but I cannot imagine how Harvard University or NYU would ensure that an article is being used by only one professor in one course in the entire school in one semester.

The staff and ARL's legal counsel are working on a copyright issues brief, which

we will send to you as soon as it is ready. We hope that you will be able to use it with your university administrators and with faculty members as an explanation of what the issues and controversies are, and what ARL's position is on those issues and controversies.

The Register's report was presented to Congress in January. There is no indication at the present time, however, that either the Senate or the House committees that are concerned with copyright believe that taking up the matter of library photocopying is urgently important. Other issues, having to do with off-air taping, copying of video and audio cassettes, and computer copyright issues will probably be taken up first. I can talk about copyright for a long time. That seems to be something that happens to executive directors of ARL—they immediately get a record on copyright. If any of you have questions about it, I will be glad to discuss the issues further.

Ray Fry from the Department of Education called me just before I left for Banff and asked me to tell you that II-C grants for the coming fiscal year will be made on June 10. Negotiations with the institutions that are likely grantees were scheduled to begin last Friday, April 29.

On the issue of the tax reform legislation, there is still time to add co-sponsors for this bill and to urge your representatives to support hearings in the House and in the Senate. I would like to thank all of you who have made the effort to contact Representatives and Senators about the bill; it has been a very successful effort. ARL has been one of the leading organizations in the coalition that was formed to encourage passage of the bill, and it is important to have as many co-sponsors as possible. As you will see when you read my report, I am not as sanguine about passage this year.

I would like to turn to international matters for a moment for the information of those ARL directors who are interested in the International Federation of Library Associations and Institutions (IFLA). There are seven nominees for the seven vacancies on the Executive Board. Logic would tell us that, therefore, there would be no election in Munich, but IFLA logic is different from many other kinds of logic, and so there may indeed be an election. And since there is an North American nominee for the board this time—Henriette Avram of the Library of Congress—I would urge all of you who are planning to go to the IFLA meeting in Munich to make sure that you have your membership certificate with you; it must be exchanged for a ballot. If you are not going to IFLA, send the certificate to me, because they can be voted as proxies if there is an election.

Since I have prepared a fairly extensive written report on ARL status and activities, I would like to use the rest of my time to tell you about a very exciting meeting that I attended recently. I represented the Association at the meeting of the American Council of Learned Societies (ACLS) on April 14-16 of this year. Al Sumberg, legislative liaison for the American Association of University Professors, and I made a presentation to the ACLS Conference of Secretaries on the subject of copyright and the effect of the new law and the law suits that were in progress. We presented the issues as we saw them and discussed the cases that were then in progress; it turned out to be a very lively and timely report. We also had a good discussion with the Conference of Secretaries on what research libraries believe are their responsibilities in terms of the continuation of nonprofit scholarly publishing in

the United States, and what we see as mutual responsibilities to our mutual constituents—faculty and students.

I also had a chance to discuss a number of other issues with the Conference of Secretaries. I found them to be a most responsive group, very much concerned about a number of issues that also concern us, such as preservation of library resources and physical access to library collections, and a great willingness to work with ARL on these issues. I hope to continue that contact with the Conference of Secretaries both informally and formally in the coming years, and with your help and involvement, to make that the basis for a real working relationship with the scholarly societies in the United States.

On April 16, the ACLS Council met. This body comprises elected delegates from the scholarly societies and the executive secretaries. The chief topic of discussion was a presentation by Lawrence Rieger, Chairman of the National Humanities Alliance (NHA), and a response by William Bennett, Chairman of the National Endowment for the Humanities (NEH). Mr. Rieger presented an urgent agenda for action by the National Endowment, outlining three major areas of action. The first is research resources, and includes preservation, mastery of bibliographic control, and expansion of access to the collections of research libraries. Priority one in this area is preservation and conservation; priority two is a national system for control of microreproduction. Federal support for the research resources area, as Mr. Rieger presented it, "must include not just more money, although this is urgent, but an active attention and active public leadership on behalf of these activities by the Chairman and staff of the National Endowment for the Humanities." NHA's second priority for NEH is to improve the pool of humanities teachers and scholars. The third priority is to build better bridges between humanities scholars and the general public. In this area, Mr. Rieger noted that an important activity would be to involve the research libraries, which would be very valuable in making collections available to the general public if and only if massive federal funding were involved for this activity.

Chairman Bennett's response was interesting but not terribly heartening. He stated that the Endowment has sufficient money under the current Administration budget proposal, which is \$112 million. NHA and ACLS disagree with that, and a discussion revolved around whether it should be \$130 million or \$158 million, while Bennett maintained that \$112 million was quite sufficient. He agreed that preservation is a major issue and stated that NEH will continue to respond; however, he feels very strongly that "more needs to be done by workers in the field" before NEH can do more. Now, you are all the "workers in the field", and I would suggest that you all write him and let him know what he should do so that you can do more. He also stated that the quality of the proposals that NEH gets is better in research programs than in any other program.

NEH is instituting a new program which will make small grants to scholars to travel to research collections, and Mr. Bennett announced that the turnaround time on this program will be seven months instead of one year.

There was an enormous response from the Council of ACLS, both to Larry Rieger's presentation and to Chairman Bennett's response. It was quite clear from that meeting that the scholarly societies recognize the urgency of doing something about research collections in the United States, and I believe if we capitalize upon

that recognition in a constructive way, we will have their wholehearted support and involvement.

I wanted to use my time this afternoon to report on the ACLS meeting because I know that we all have been talking for many, many years about how to get the scholars involved in the problems of research libraries. What I realized on April 16 was that they are already involved in those problems and they understand that involvement.

MR. GOVAN: Thank you, Shirley. The liaison you are establishing with these outside organizations will be invaluable to the Association. The next item is the report from OMS.

Office of Management Studies Report

MR. WEBSTER: I want to review quickly some of the services that are available to you as members of the Association and, in addition, give you a sense of the direction that OMS is taking regarding those services. [A summary of the OMS Annual Report for 1982 appears in Appendix E.]

The core of our program is the provision of support to you to conduct organizational study and analysis. We have put together several systematic packages for analyzing components of your operations, covering: management, services, preservation, collections, and program review for mid-sized libraries in a planning process. In addition, we have been moving toward taking pieces of those comprehensive studies and making them available for you to use in shorter, more focused, more intensive studies (e.g., environmental studies, collection descriptions, user studies, or possibly something as specific as reorganization of an area of the library such as technical services). We have been trying to make those available in response to your specific request and we try to design these studies to meet your needs. Part of the direction we are taking with these programs is to add to the components, and the big effort we are making right now is in the area of public services.

As you know, the General Electric Foundation has provided us with a grant of \$250,000 to make available a self study process in that area. I would like to ask Patricia Swanson, who is the coordinator of that project, to review briefly the status of the study.

MS. SWANSON: There are three different components in the public service study. The first is the assisted self study. Six libraries were chosen to participate in studies that will last about six to nine months. Three of the libraries have started—University of California at Riverside, Columbia, and Michigan State; Brown, University of North Carolina, and Temple will begin sometime between August and October.

There were seven sponsored research projects funded last April. The categories were somewhat predictable: extending, integrating, introducing technology into public services, both traditional and new services; finding out who our users are,

what they want, and what they really need. Grants were given to the following: University of Arizona to develop an instruction program for students in a scientific discipline; Cornell University for developing a model of services for agricultural researchers; University of Illinois at Urbana for assessing the needs of the "invisible" user—the user who is accessing the library from a computer outside the library; Michigan State to identify and analyze the non-users and to see what impact library policies have or do not have on non-use; New York University to assess users effectiveness with online catalogs; Pennsylvania State to compare four different types of user instruction for online catalogs; and Texas A&M for experimenting with the end-users of commercial databases. If any of you are interested in more details about these projects, I can give you the telephone numbers and the names of the principal investigators in each institution.

MR. WEBSTER: One of the things that is most impressive about the Public Services Project is the large number of libraries that have applied; 38 separate institutions applied to participate in some part of that program, which, I believe, is a real indication of the current degree of interest in this area. We have an advisory committee working with us on this project that spend a day going through all of the proposals in some detail and in fact, developed a consensus on those that won the awards.

The other aspect of this part of the services area is the consultant training program. We are currently recruiting the fourth and final class of consultants in that program and we expect to begin their training this fall.

The second area where we have services available to members is in the area of information services and publications. To date we have issued 90 SPEC flyers and kits covering distinct topics, providing information of an operational character to you. Out of that 90, about 60 kits are in print and several of those represent updated subjects. Current topical coverage includes SPEC flyers on the issue of user education for use of online catalogs, and fund-raising, a topic that is being issued this month. We plan on covering, in the near future, telecommunications, building renovation, and library materials cost studies.

One of the services that is available is requesting specific surveys to be done on topics of particular interest to you. The on-demand survey is one of the activities that we have been doing quite frequently for member libraries lately, and, I believe, the fund-raising SPEC flyer and kit is a product of such a request.

In response to concerns expressed by some members, we are moving away from comprehensive surveys of all ARL libraries on every topic we investigate to more selected sample surveys. At the same time, we also alert all SPEC liaisons to the fact that we are covering the topic, thus providing the opportunity for all ARL members, if they want to spend the time or contribute the documents, to be a part of that survey.

Another element of this program is a collaborative research and publications program. We have just issued a paper by John Vasi on Budget Allocation Systems for Research Libraries and we are currently at work on two papers, one on the training and preparation of bibliographers in research libraries and the other on the role of the deputy or associate librarian in research libraries. These two papers will be coming out shortly.

As you know, several Management Skills Institutes (MSI) are regularly scheduled each year. But we are finding that a large number of ARL members are requesting in-house or sponsored institutes in which they make a commitment of 20 staff members and then open the institute to other librarians who are in the area who might want to come. (Twenty is the number we need to break even in these events.) We have also held several advanced management institutes; most recently we held two for Australian librarians, which were quite successful in giving substantial exposure to some of the concepts that we have been developing here to senior management staff in Australia.

At the request of the OMS Advisory Committee, we are designing an institute intended just for ARL directors, to be held prior to the October 1983 Membership Meeting. This institute will follow the format and cover many of the topics that are included in the basic and advanced MSIs, but it will be directed toward involving directors specifically in the exploration of those issues and concerns of particular interest to them, and relating those to our knowledge and understanding of current management theories and techniques. There will be an opportunity for those people who want to attend, in fact, to determine the agenda of topics that will be covered in this institute. Once we have an indication from you that you are interested in participating, we will give you the chance of saying which issues you would like to see covered, and then we will design the program around that agenda.

Special focus workshops and the training film program are continuing services that are available. New directions we are taking in this area include a collaborative project with the University of Chicago Graduate Library School for students who are about to graduate. It is a workshop intended to ease the transition from being a student to being a contributing member of a library staff; we will use the MSI format but address it toward helping these individuals move more quickly into a fully functioning role in your libraries.

There are several other new projects that are being formulated. One is in the area of cooperative collection development. As you know, we have been working with several groups of libraries—one in New York State, one in the Washington area, and one in the Texas area—in developing stronger ties for cooperative collection development. We have been working with the ARL Task Force on Collection Development in similar efforts, particularly investigating whether the RLG conspectus could be used by ARL libraries cooperatively to describe the distribution of strengths within the research collections within North America. The Association has submitted a proposal to the Council on Library Resources for financial support to carry out this effort. [For a more detailed report on this project, see p.]

The ARL Committee on Library Education has expressed an interest in having an institute directed toward those library educators that are dealing with individuals that are going into research libraries. In response to that interest, we have been working with that committee to design this effort. It is still in the preliminary stages, but it will probably be a three-week institute that would include field experience in an operating library for research library educators.

Another emerging project is the operations analysis service through which, again with the encouragement of the Advisory Committee, we are exploring ways to develop better quantitative analytical information that can be applied to problem solving and decision making in a research library. We are also developing the notion

of a self study process for technical services in research libraries, following the model we have used in collections, preservation, and public services.

And finally, another direction that we are starting to look at—and we are putting together a proposal—is the possibility of securing some financial help for libraries who are interested in conducting preservation studies. As you know, NEH has supported the design of a preservation self study process. That manual is available to you as well as a technical notebook. Our hope is that we can secure some support to provide financial help in actually conducting those studies.

I am more than happy to answer questions specifically on any of these topics.

MR. GOVAN: Thank you, Duane. We next have a report from our co-sponsor, the Canadian Association of Research Libraries (CARL), by the current President, Guy Cloutier.

Report from the Canadian Association of Research Libraries

MR. CLOUTIER: Mesdames et Messieurs. Don't worry, I will deliver my talk in English, although you will have to excuse my English at times; I may be thinking in French and trying to express my thoughts in English, with the difficulties that you might imagine. Before I get to my report on behalf of CARL, I would like briefly to welcome all of you to these magnificent settings. This place should provide a magnificent atmosphere for a good mixture of business and pleasure, for which generally librarians are well known.

CARL is a young organization, as most of you are already aware. We are still getting organized—it seems to be an ongoing process. As a matter of fact, CARL is only seven or eight years old, so our level of activity does not compare to that of ARL. Briefly, our activities may be resumed in three parts. We have put a lot of time and effort in responding or reacting to proposed government legislation and to government agency reports or policy proposals on issues that are related to our interests or objectives. We have had various meetings with various government agencies, primarily the granting agencies, for obvious reasons, relatively informal. We have also invested a lot of time in establishing relations with other associations such as yours, SCONUL, the Social Science Federation of Canada, and so on.

The ongoing activities are short in number. We collect library statistics; CARL would like to be the central gathering agency for university and research library statistics, reporting this information to Statistics Canada. We have a regular labor relations survey. We are getting interested in electronic mail and the use of the ENVOY system from Bell Canada for interlibrary loan purposes and for communication between CARL members, which led us to develop an interest in national standards for telecommunications. I had the pleasure recently to attend the SCONUL spring residential meeting in Edinburgh, which proved to be extremely interesting and very educating.

In the near future we are planning a meeting with the Canadian Association of Large Public Libraries (CALPL). We are considering the possibility of funding a

study of federal funding for university libraries and we are also planning a workshop on user interface for online catalogs. One of our major preoccupations incoming years will be the consolidation of our activities to try to establish a permanent secretariat, which we have not had up to now. The form it will take, we do not know yet—maybe centralized or decentralized; there are only 30 of us and we have a geographic problem like you have in the U.S., so we will have to make the best out of it.

That is about all I have to report—I probably forgot many things, but with the discussions you will have with my colleagues, you will have an opportunity to enquire more about specific activities. Thank you.

MR. GOVAN: Thank you Guy. We are delighted with this opportunity to share sponsorship of a meeting with CARL.

Next we will have a report from The Standing Conference on National University Libraries (SCONUL) from Great Britain, Mr. A. Graham MacKenzie, Honorary Treasurer of that organization and Librarian at the University of St. Andrews, will make the report.

Report from the Standing Conference on National and University Libraries

MR. MACKENZIE: I am not going to attempt to present to you a complete run-down on the activities of SCONUL: this would take more time than I have at my disposal. Instead I want to concentrate on a United Kingdom perspective—notice I do not say an English perspective—of the main topic of this meeting, which is the online environment. I am not even trying to cover all of the online environment (see figure 1). I would wish only to look at acquisitions and bibliographic control and the methods by which libraries acquire and use the records they need for these activities.

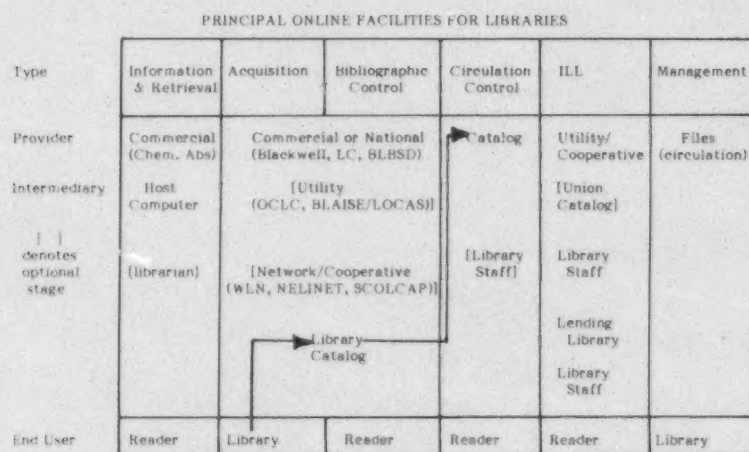


Figure 1

On information retrieval: we do it exactly the same as you do. In fact, we even use the American utilities rather than the European ones because they are cheaper and easier. Interlibrary loan runs in a very similar way, management information is very much a personal thing, too, to each library.

Let me therefore concentrate on bibliographic control, the creation and use of catalog records online, and try to highlight the differences between our philosophies and systems—if indeed there are differences. One obvious similarity lies in the part played by our respective national libraries. The National Library of Canada, the Library of Congress, and the British Library, Bibliographic Services Division (BLBSD) have all undertaken the production of catalog records in machine-readable form, and the translation (where necessary) of records imported from other countries into the appropriate national MARC format.

The British Library, which likes to call itself the "hub" of our national library structure, has three main divisions. The Reference Division, which is the former British Museum Library and the Science Reference Library; Patent Library Offices, the Lending Division, which is a combination of two organizations housed (the former National Lending Library for Science and Technology, founded by Dr. Urguhart, and the former National Central Library) at Boston Spa; and the Bibliographic Services Division, which grew from British National Bibliography.

The Bibliographic Services Division (see figure 2) is responsible for the creation of the UK MARC record, but not for cataloging the intake of copyright or other material in the remainder of the British Library. But it does function as a major source, indeed the major source, of catalog information for other UK libraries in a number of different ways. First of all, it sells MARC exchange tapes; this is not a very popular option because the tapes are rather expensive and can only be justified by a few large libraries or by the cooperatives. Secondly, it runs BLAISE, the British Library Automated Information Service, which is an information utility providing bulk information retrieval facilities and cataloging data. Thirdly, there is SRS—Selective Record Service—which provides exchange tapes of records which are requested by individual libraries for use in their own in-house systems (these tapes are not formatted; they are just straight MARC records). Finally, there is LOCAS, the Local Cataloguing Service, which tapes records requested by libraries, adds local data, and formats them in the appropriate way for that library; usually the tape is sent to a bureau for production of COM records. These, then, are the main activities of the Bibliographic Services Division.

Now to the cooperatives. You will have to learn a lot of new acronyms, I am afraid, just as we have to for the North American scene. We have four major online cooperatives in the UK (see figure 2). BLCMP, the Birmingham Libraries Cooperative Mechanization Project, which dates from the late '60s, was originally a cataloging utility but is now developing acquisitions and circulation modules. LASER, the London and South Eastern Library Region, is quite different in concept. It was set up to provide a union catalog of (mainly) public library holdings in London and the Southeast. SWALCAP, the South West Academic Libraries Co-operative Automation Project, again has a different origin. It started off as a circulation system with a control minicomputer and satellite machines in each member library, but then decided that it had to have a batch-mode cataloging module as well.

THE PRESENT UK SYSTEM

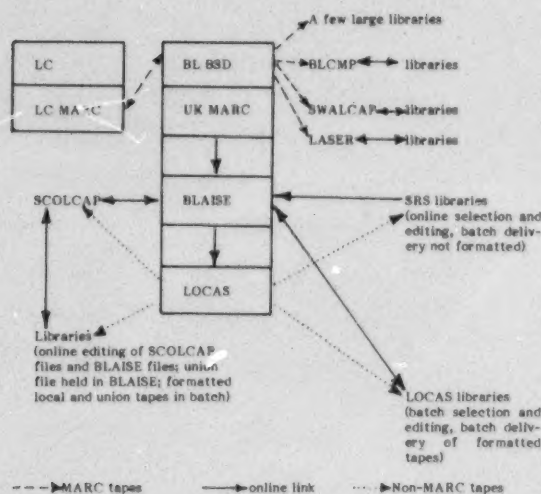


Figure 2

The fourth cooperative, SCOLCAP, the Scottish Libraries Cooperative Information Project, is quite different. It was set up in hope, as part of a national network which did not then exist; in other words, as an experiment. It has been designed with distributed processing both upwards and downwards in that it takes records from BLAISE, and handles them itself, and or in a few cases passes them on to individual libraries to handle in their own systems. SCOLCAP was firmly designed for acquisitions and cataloging; it is not interested in circulation. It consists of about 35 libraries, mainly in Scotland, although there are one or two in the north of England. Its headquarters at the National Library of Scotland hold the hardware and the central team which, interestingly, consists of only five people. The member libraries have intelligent terminals which are linked in by tied line, and the SCOLCAP machine will hold approximately the latest 12 months' UK MARC (as a "potential requirements" file); MARC or EMMA* records (plus, of course, local data) for all books which are ordered or held by the members; and the libraries' profiles, together with acquisitions and financial data for all orders placed.

If a member requests data (normally at the order stage) for an item which is not held in the SCOLCAP machine, the call is automatically transferred to the BLAISE file in London and the Data is immediately down-loaded to SCOLCAP: this operation is transparent to the user. Hence there is no disadvantage in SCOLCAP holding only recent MARC data, but a significant reduction in local file size and, therefore, in hardware costs.

SCOLCAP output is currently in COM format (local and union catalogs are produced), but an online public access option will shortly be available; the system contains about one million records. It is both a network and a utility, but conceptually it is seen more as a cooperative, with strong resource-sharing

* Extra MARC Material: i.e., items for which no MARC record can be traced, and which thus must be cataloged locally.

connotations. One interesting feature is that two major research library members, who have substantial in-house computing capacity, are intending to use the central system for acquisitions and cataloging of only that part of their holdings which they judge are of interest to other members; they will, however, hold all their catalogs online on their own machines and allow other members to interrogate this database if SCOLCAP files fail to produce a "hit". This procedure may result in overall economies of operation, without deterioration in service. Perhaps such distributed processing may become more common in networks of all kinds, as local computing power spreads more widely.

So far, practice in the U.K. is not so very far different from that in North America, but we now come to a development which, so far as I know, is not paralleled on this side of the Atlantic (although no doubt I will be contradicted in due course—this always happens when I lay down the law!).

BLBSD is changing. It is about to set up, in 1984, a national database and utility—UKLDS (United Kingdom Library Data System)—which is far beyond the scope of the present BLAISE/LOCAS system (see figure 3). It will, of course, still hold all the files which are currently in BLAISE and in LOCAS—that means basically UK MARC and LC MARC—but in addition it is going to add all monographic records from all the divisions of the British Library (note that this includes the printed British Museum catalogs, as they used to be, which are being retrospectively converted in a format which is more or less compatible with MARC). It will also hold all the EMMA records and the locations from the cooperatives. This total system will comprise some four million records, growing annually by about ten percent, and access to it would be either computer-to-computer, in which case records could be downloaded immediately, or from terminals to computer, in which case the output would be in the form of tape. So we have here the potential, at least, for a truly comprehensive national database and union catalog accessible online for the free interchange of data within the whole library community, without any barriers of "ownership" or copyright.

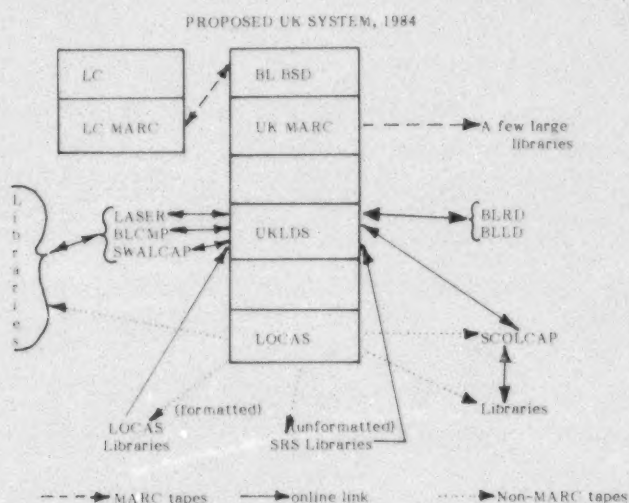


Figure 3

I would like to finish with a question that is beginning to gain some currency in Britain: do we need catalogs in their present form? "Of making, many books there is no end," said the Preacher; "and much study is a weariness of the flesh". If the study is of catalog codes and classification schemes, I, for one, would heartily agree: LC, Dewey 1-19, Bliss, UDC, for classification; BM, Cutter, AA, AACR1 and 2 for cataloging no doubt to be followed by AACR3, 4 etc., all directed towards a more modern logical, and thorough ordering of the names and addresses of the books in our libraries. This is, of course, an admirable objective, and I applaud the skills and dedication of all those who have made it possible; however, I wonder if it is all entirely necessary nowadays at local level?

We exist mainly for our readers; what do our readers want? I suggest that 99 percent or more (in fact, everyone except the professional bibliographers) need only the names and addresses, and that we, the profession, have imposed our own complexities on them with the very best of motives. We are moving into the era of online public access catalogs—OPACs; but OPAC should not be spent OPAQUE, it should be clear, even transparent, to the user. If computer technology can provide a means of access which is easier for him, why should we complicate matters? I believe we have such a means available to us—search by Keyword. All the reader has to do is input any part of the author/title field, or more than one part, in natural language without MARC format or any other artificial structure, using simple Boolean operators; and the computer is perfectly capable of displaying the appropriate records. What is more, the user does not need to remember all the details accurately; so long as he is sure of even one part of the author or title he will eventually succeed. Moreover, once one relevant title has been identified, it is then possible to transfer the enquiry—again online—to a classified file which makes browsing easy: goodbye to subject headings and all their intellectual demands and costs?

Of course some form of standardized input to the system is required; but its exact form does not matter too much, since the reader does not need to know much about it. Indeed, the catalogers themselves may quite happily forget about new versions of AACR, since their records are only an input to the new style of the catalog rather than a definitive end-product.

Is this the future? I am sure our readers hope it is, and I am equally sure that we should at least examine the questions which such a concept raises with open, rather than closed minds.

MR. GOVAN: Thank you, Mr. Mackenzie.

Consideration of New ARL Members

MR. GOVAN: Our next item of business is to consider inviting three libraries to become members of ARL. These three libraries—the University of Delaware, the Georgia Institute of Technology, and North Carolina State University—have all qualified for membership, and the Board is now asking for a vote from the Membership to invite them to become members.

All in favor of inviting these three? All opposed? (The motion was passed.)

Very good. Let me introduce the directors to you: Susan Brynteson from the University of Delaware; Graham Roberts, the director at Georgia Institute of Technology (Helen Citron is representing Georgia Tech at this meeting); and I.T. Littleton from North Carolina State University.

Report from the Council on Library Resources

MR. GOVAN: The next report is from the Council on Library Resources.

MR. HAAS: Rather than giving you an overview of what the Council is doing right now, I will just hit a couple of high spots in which you might be interested, and then ask Lee Jones to report quickly on Bibliographic Service Development Program activities, Deanna Marcum, our newest program officer, to report on her enterprise, Information Delivery Services; and then John McDonald, in his capacity as chairman of the professional education portion of the Council's program, to do the same, if he is willing, and spend a few minutes talking about that activity.

The Council's Board met last Saturday, and four new members attended the meeting of the Board for the first time. They are: Martin Cummings, National Library of Medicine; William Friday, President of the University of North Carolina; Elizabeth Kennan, President of Mount Holyoke College; and Hermam Liebaers, who was at one time the National Librarian of Belgium, is still one of the world's senior international librarians, and currently works for the Prime Minister of Belgium restructuring that country's research organizations. With these four new members our Board now totals 22. We will be adding a few more members to the Board in the next few months.

I will not go into detail about the Board meeting itself, but I do want ARL especially to know that the Board has agreed to provide funds to ARL to develop procedures for the general application of the RLG Conspectus to a larger number of libraries, with the object of creating a national inventory of distinctive collections. Carol Mandel, Jeffrey Gardner, and others at ARL have helped to refine the objectives. It is my hope that about 18 months from now all of the work will have been done so that we can say that, in fact, the national machinery for building a national inventory of distinctive collections is a place.

Let me turn to a completely different topic, the Records of Government. A few months back, a number of historians and archivists expressed concern about the state of the National Archives. As discussions continued, it occurred to us that we really have a fairly unsophisticated perception of what the "public" should expect of public records. And by "public" I am really referring to a number of categories—journalists, genealogists, historians, political scientists, and so on. The more we talked, the more attractive it became to put together a committee to consider and express the public's perceptions of what should be expected of archives at all governmental levels—federal, state and local. Three foundations have joined us in providing the funds for this. Work is just getting under way. Ernest May, professor of history at Harvard, has agreed to chair the enterprise.

Another unrelated topic. At Wingspread in early December of last year, about 45 librarians, many from ARL, foundation people, and university officers, had a very thoughtful and, I believe, a productive series of discussions on the agenda for research libraries. One of the items that came out of that meeting was an implicit—and sometimes explicit—instruction to the Council to try to create some kind of continuing forum. We are going to do this at least once and maybe twice more to see if in fact the process has merit. Forum II, if you view Wingspread as Forum I, will be held in early October. Again, limited in number (simply because this session is going to be at Wye Institute, the Aspen Foundation's East Coast site) probably 28 to 30 people, and again librarians, university presidents, chief academic officers, and representatives of the learned societies, foundations, and scholarly publishing will take part. I believe the focus of this next meeting will be to propose national directions for resource development and preservation. The invitations will be sent out in about two weeks.

Finally, in this cross-sectional rather than comprehensive overview of the Council, I met a couple of weeks ago with people from the Association of American Universities (AAU), and again, as always, had an interesting discussion with a clear interest in what all of us, ARL and others, are trying to do. I raised the question, to see if there was any interest, in establishing a seminar on research library economics involving university presidents, chief academic officers, financial officers, and others, and there was immediate support for the idea. In fact, the matter was raised at the AAU general session the next day. So we will be trying to put together a seminar on research library economics, looking down the road at the implications of technology and almost everything else in terms of cost implications for research libraries. I believe it is imperative that the librarians and university chief administrative officers, financial officers, and faculty talk together on this topic. We have apologized a bit too long about costs, and maybe its time that we got down to brass tacks to try to find out if in fact horizons can be broadened in the sense of what a research library is likely to be like in the decades ahead.

That is just, as I say, a snapshot of some of the things with which we are involved. I would now like to call on Lee Jones, Deanna Marcum, and John McDonald.

MR. JONES: In order to keep this extremely brief, I prepared a written report that covers all of the topics in which the Bibliographic Service Development Program (BSDP) has been active over the course of the last six months, since last I had the opportunity to speak with you. I will highlight only one segment of our activities, that of the online public access catalog and the study that has now been completed. All five of the final reports have been submitted; they are available from the authors themselves and will eventually be available through ERIC.

As a follow up to that set of studies, a session was held at Wye, Maryland, at the Aspen Institute, in the middle of December to take a look at the results of that set of studies; to talk about the implications for system designers as well as research library managers. Part of the background information prepared for that meeting was a paper on costs and features of online public access catalogs, and indeed that document keyed much of the discussion. That document will be revised as a result of the discussions at Wye and released late in the summer. In the interim, however, the proceedings of the Wye conference are available from the Council and include the summaries of all five online public access catalogs study

reports—it is the only place where all of the summaries have been collected. There will be a book published by Neal-Schuman and will be available immediately prior to ALA, prepared by three of the more active individuals in that project: Joesph Matthews, Douglas Ferguson and Gary Lawrence.

Finally, in San Antonio immediately after the ALA Midwinter Meeting, a session was held for about 35 people concerned with training users of online public access catalogs. During that session we managed to bring up 14 or 15 online catalogs in the space of two hours, so the people who attended the session could see how training was being done on each of the systems. The proceedings of that session are in preparation and will also be available from the Council. As a follow-up to that particular meeting, we have just decided to fund the proposal prepared by Northwestern University to look at how one goes about training users of online public access catalogs, to attempt to develop a model for such training programs, and to evaluate them by taking a look at the transaction logs comparing actual performance of users at the catalog before and after training.

For additional information on the BSDP, copies of a summary report especially prepared for ARL are available at the back of the room. If any of you would like to discuss any of the topics covered I would be happy to do so over the course of the next couple of days. [The BSDP report appears in Appendix D.]

MS. MARCUM (Council on Library Resources): Since the Information Delivery Services Program started officially with the Wingspread Conference last December, there is not much to report yet. I hope that I gain a substantial amount of information from many of you about those projects and activities that are most urgently needed in the area of information delivery. Before we actually begin a program, we will be engaged in fact-finding. We have identified a task force to work with me for six months to identify the most pressing issues. The members of the task force are: Jay Lucker from the Massachusetts Institute of Technology, Richard McCoy from the Research Libraries Group, David Penniman from OCLC, Joseph Shubert from the New York State Library, Donald Simpson from the Center for Research Libraries, and James Wood from Chemical Abstracts. We have had our first meeting, and will meet probably twice more. Our goal is to investigate those projects or experiments that should be done on behalf of research libraries generally as they try to improve delivery services. We hope to have that report finished by September.

The second major effort I will mention to you is really the first project funded within this new program. It comes from a proposal submitted to us by the Network Advisory Committee, which asked us to undertake a document delivery survey. Richard Boss of Information Systems Consultants, Inc. will be doing Phase I of the survey. The report of Phase I, scheduled for completion by July 20, will provide a current "snapshot" of document delivery activities and will recommend what further studies are warranted.

I hope to hear from you about any document delivery activities or access to information projects you are working on in your own institutions or regions.

MR. McDONALD (University of Connecticut): We will now hear from the unpaid member of the Council.

MR. HAAS: We have a lot of them.

MR. McDONALD: And you are getting full value for your money!

I have reported to you on several occasions about the progress of the Council's Professional Education and Training for Research Librarianship (PETREL) program, and I am happy to do so again today. I have also recently communicated with you in the form of a covering letter to a recent issue of the Council's newsletter, Current Developments. That letter urged you to note that graduates of some of the PETREL-funded programs at major library schools are now reaching the market and urged you to remember that we agreed at the outset that it is not enough to provide these educational opportunities—these people must secure interesting positions that would use fully the newly acquired skills from these programs. I do want to continue to emphasize that; I believe these really are superior people and they deserve excellent opportunities. I hope they are finding them.

In this connection I would like to mention the three programs that have been funded. The program at the University of Michigan will be funded for a third year, so there will be a third class enrolling shortly. The first five graduates are available and the next five soon will be. The Chicago program will soon be entering its second year.

At the University of California, Los Angeles, the first group of senior fellows completed their work last summer and the second group will begin work this summer. I believe the first group is, by and large, very positive about its experience. Some of you were members of that group and can speak for yourselves on the subject, but the reports I have had from a number of you suggest that it was well worth the effort—and plenty of effort went into it! It was an intensive experience and I am sure the next one will be, too.

While on the subject of UCLA, I would like to say what you probably already know, that the transcript of the first Frontiers Conference, operated by Dean Robert Hayes and the UCLA Library School, with some assistance from Russell Shank and his staff, has been printed and edited to some extent, and Bob is seeking a publisher for that work. I am very happy to be able to say that a second Frontiers Conference will reinforce the Canadian connection. The library school at the University of British Columbia will host the second conference and Basil Stuart-Stubbs is well advanced in his plans for that meeting, which will be held early next month. It is going to be at another spa—I do not know how much more of this I personally can stand—at a ski resort called Whistler which no doubt some of our Canadian friends have visited. I am looking forward to June 7.

The Cooperative Research Program that the Council has funded under the PETREL rubric is bringing the library school faculty and librarians together to conduct research. This program, which is of modest scale, supports the incremental costs of their work. The first round of awards was made some time ago. The second round of proposals has been reviewed, and five awards will be announced soon.

Finally, I will say that the Council has secured a substantial grant from the Pew Foundation in aid of some basic research on librarianship and education for it, and the PETREL Advisory Committee is beginning to turn its attention to how that money might most effectively be put to use. Jim Haas, himself, has ideas which he

will be developing, I know, and we look forward to this new phase of PETREL's activities. Thanks very much.

MR. HAAS: One final note. We will support again next year the management intern program. There are a few bright shining faces in this room that have gone through this enterprise. Five will begin their internships this September. If memory serves, they are going to be at the University of California in San Diego, at Northwestern University, at Washington University in St. Louis, at the University of Georgia, and at Columbia University. Thank you very much.

Report on the Working Paper on Document Delivery

MR. GOVAN: You may remember that following last October's ARL meeting, Jay Lucker very generously offered to prepare a working paper on document delivery. He is now going to report on his progress.

MR. LUCKER (Massachusetts Institute of Technology): I originally planned to have in your hands the white paper on document delivery, but I was overtaken by two things: local events, and the formation of the Council on Library Resources Information Delivery Services Task Force. I have decided, with the agreement of the secretariat of this organization, to try to hold this off until the fall. The reason for this is that the task force will be defining, I hope, a series of experiments that will have a major impact on document delivery and on ARL's participation. So rather than to write one report and have to revise it, I propose to wait until after the six-month period that Deanna has spoken about has expired.

Briefly, what we are trying to do—and I believe it is important for all of us—is to design a series of experiments to identify the various potential methods of improving document delivery. A lot of people have been spending a lot of time talking about the next ten years and the fact that information will appear in different forms and we will be out of the business, and thus we do not have to worry. But if you look at the ARL Statistics, our libraries have something like 400 million printed volumes, and they will be around for a long time. So we are proposing not only futuristic experiments, but those that will keep us in business. We are looking for things that are reliable, responsive, economically viable; that have variable times and economic components to them; looking for ways to standardize policy and propose to work within the context of the copyright law.

Some of the things you have been talking about are very important in terms of what kinds of experiments you might conduct. We would like to first of all try to simulate the electronic journal environment by actually acquiring journal information in electronic form and providing it to research libraries to see how people act in this environment. Secondly, we would like to experiment with all kinds of delivery systems for what we already have, from courier services to facsimile, digital facsimile, analog facsimile, electronic scanning and delivery, and perhaps even conversion to optical discs. One of the things that we are trying to work towards is to design some experiments that can be done economically and efficiently. When I spoke at the last meeting about document delivery, I mentioned the MIT experiment had been referred to a foundation. Unfortunately, that

foundation decided not to fund our experiment at this time. We still have the equipment in place, and we hope perhaps through the information delivery task force there will be a way to tie this into some sort of an experiment.

Finally, I would like to ask any of you who are doing any experimental work with document delivery, whether it merely means using expedited courier services or something much more esoteric, to drop me a note or send me a copy of your newsletter that has this information in it. I would be most grateful. Thank you.

MR. GOVAN: Thank you, Jay. We look forward to hearing from you again in the fall. The next report is on performance measurements and the Committee on ARL Statistics, to be made by Richard Talbot.

Report of the Committee on ARL Statistics

MR. TALBOT (University of Massachusetts): Do not worry, I am not going to talk about performance measures. I am only going to tell you what the committee is trying to do about them.

If any of you have read any of the literature on performance measures, you will know how impenetrable it is. So we decided rather early on that we would not try to make any kind of recommendations to the Association about any performance measures that were obtuse. What the committee is trying to do is to look at a set of performance measures that would be easy and inexpensive to apply and still produce a beneficial result. We believe we have found such a set of performance measures in the work of Paul Kantor. Paul was asked by the committee to work with us on this and while we were impressed by what he said to us we wanted to test these measures in our own libraries.

So, the members of the Committee on ARL Statistics, together with Richard De Gennaro at the University of Pennsylvania, asked Paul to give a workshop to the members of the committee and some of their staff to train them in the use of these measures. This was done with support of the ARL office in February of 1982. The measures were tested in these libraries—Virginia, Emory, Massachusetts, Pennsylvania, and York—during the spring of 1982. As a result of these tests, the committee recommended to the Board that Paul Kantor be commissioned to write a manual that would explain these performance measures and enable you to apply them in your libraries. The Board agreed with that recommendation.

Paul was indeed commissioned to write such a manual and that manual has been written; it is in production. You will be getting a copy of the report of the committee, which describes what we did, what it cost us in terms of time and money, and the results. You will also be getting a copy of the manual. We hope that you read the manual and maybe even apply it and contact us with the results. We hope that this can be the beginning of the establishment of useful performance measures for the Association. I am not going to expand on that any further, but I would be glad to talk to anybody who would like to talk to me about these measures later. Thank you.

Report of the ARL Task Force on Collection Development

MR. GOVAN: Our next report is from the Task Force on Collection Development. Joseph Treyz, the chairman, will make the report.

MR. TREYZ (University of Wisconsin): In 1981, the ARL Board of Directors established the Task Force on Collection Development. Its present members are John Finzi, Charles Osburn, Hank Edelman, Robert Miller, Warren Kuhn, Marianne Scott, and myself as chair.

The task force's major goal has been to move towards an ARL program for cooperative collection development. The members soon realized that knowledge of the content of research library collections and of libraries' collecting policies is an essential prerequisite in resource sharing and other cooperative programs. The task force therefore recommended as a first step the development of a reliable inventory of significant research collections in North America. The inventory would describe the current and changing configuration and collection strengths in North American libraries, with the potential to expand internationally, contributing to the assurance of total coverage and the identification of lacunae; serve as the basis for cooperative collection development programs and for the distribution of responsibility for collecting, cataloging, and preserving materials; serve as an interlibrary loan and public service referral tool; provide a consistent guide for the development of institutional collection policies; serve as a communication device for indicating changes in collection development policies; provide the capability to monitor North American collection development; provide information in relation to possible fund-raising activities; and stimulate changes in the way librarians and their clients think about cooperation.

After considerable study, the task force members determined that the expansion of the database, or Conspectus, begun by RLG would be the best way to develop an inventory of the collections. To test the feasibility of building the expanded database, the task force operated a test of the RLG procedure in five ARL libraries during 1981-1982. The five test libraries—Cincinnati, Notre Dame, Manitoba, Iowa State and Wisconsin—completed the RLG Conspectus for economics, chemistry, and philosophy and religion, and designed and carried out validation studies for parts of those areas. The test indicated that there are some problems but the Conspectus approach would be workable for all ARL libraries. In addition, test participants found that the Conspectus was beneficial to the individual libraries completing it. These benefits fell into two general areas: 1) staff development—the staff gained a better sense of the collection area assigned to them, learned more about faculty views of the collection, gained experience in working with collection evaluation techniques, and developed a broader view of collection development; and 2) collecting policy—as strengths and weaknesses in the collection were described, policies were made more explicit, and, in some cases, flaws and inconsistencies in collecting patterns were identified.

Another result of the test was the identification by selection officers of several tools and resources needed to assist them in completing the descriptive work on the Conspectus. The task force, working with RLG staff and the chair and vice-chair of the RLG Collection Management and Development Committee, outlined the next steps needed to expand the Conspectus into an inventory of significant research

collections. Future work falls into three phases. Phase I, a six-month period, calls for the development of tools and procedures needed to implement the collections Conspectus across the wide variety of research libraries. Phase II, approximately 12-months, will test the tools and procedures, and Phase III, also a 12-month period running concurrently with Phase II, will involve the negotiation of the operational arrangements for adding non-RLG libraries to the Conspectus and gaining the commitment of libraries to participate.

In February 1983, the ARL Board of Directors and the RLG Board of Governors received and endorsed the three-phase plan. Phase I and II will be carried out by the Association of Research Libraries Office of Management Studies, working closely with the Research Libraries Group and with the advice of the ARL Task Force on Collection Development. A collection development specialist will be added to the OMS staff to conduct Phase I. This Phase will develop or detail technical and processing manuals for individual research libraries to use in completing the Conspectus, and design a training program and resources for bibliographers and selectors to introduce them to the Conspectus and its use in cooperative programs. It will also provide for the refinement of the RLG Conspectus itself.

Our experience with the Conspectus today indicates that it works well for the humanities, arts, and social sciences, but it works less well for the sciences—particularly those fields that rely heavily on journal literature and/or current material. More work also needs to be done in learning to apply the Conspectus to interdisciplinary fields such as area studies.

Other work in Phase I will develop and test the verification or validation studies. Because the completion of the Conspectus relies heavily on the projected judgments of individual bibliographers and selectors, there is a need for techniques to compare conspectus ratings on an objective basis. The object would be to establish a clearinghouse of methodologies and results of validation studies.

Also addressed will be the development of workable approaches for making collective decisions for cooperative collection development as we move toward regional, national, and international programs. During Phase I, all of the products will be tested in three libraries, and reviewed and critiqued by the RLG staff, bibliographers, and the project Advisory Committee, which will include representatives from both RLG and non-RLG libraries.

A funding request for Phase I was submitted to the Council on Library Resources, and as you heard a few minutes ago, it is being funded. With this good news, we should be well under way by summer, with a completion date for the first phase by the end of the year. Current plans for the Phase II field test will include the development of a proposal in support of that phase to be carried out by the libraries at Indiana, Purdue, and Notre Dame Universities, and two or three RLG libraries in the Midwest. In addition to working with ARL on the test and review of program materials, that is, the manuals and the materials and validation studies, the Research Libraries Group would provide technical support in developing and maintaining the shared database and the Conspectus results of the participating libraries.

Phase II would be carried out by the ARL office and the ARL Task Force on Collection Development, working in conjunction with RLG and with the advice of

the Office of Management Studies. To fund Phase II, a grant proposal will be submitted to the Lilly Foundation in late spring.

There are still some questions that need to be resolved, e.g., payment of the RLG costs, the appropriate functions for ARL as the broker of RLG work, ownership and governance of the data, access arrangements and cost, and keeping the data current. These questions should be worked out by the end of Phase II so that by 1985, the ARL libraries interested in becoming a part of the ARL inventory of research collections should be able to join and start the process.

While a good deal of work remains to be done, there has been a long history of effort that has gone into the description of research collections that started many years ago in the collection development committees of the Resources and Technical Services Division of the American Library Association. The important breakthrough for the task force was the availability and the excellence of the RLG Conspectus. All of the members of the task force are deeply grateful for the very real cooperation and help that we received from the RLG librarians and staff. On this and on other major points in the program, the task force members, representing many groups in the United States and Canada, have been in unanimous agreement. Quite frankly, we are excited about the potential of this program for ARL. It should be an important step to major cooperation in the areas of acquisitions, cataloging, preservation, and resource sharing among North American research libraries and perhaps even beyond. Thank you.

MR. GOVAN: Thank you, Joe.

ARL President's Report

The next item on the agenda is the President's report. You will all be shattered, I know, to hear that I am not going to give one. The reason why is that most of the activity of the Board and Executive Committee for the last six months focused on the ARL Five-Year Plan. You are going to hear a lot about that at Business Session II, so I think it is just as well that I not say anything today.

[Business Session II, for the ARL Membership only, was held on Friday, May 6. The topics of discussion were the ARL Five-Year Plan, and the Operating Plan for 1984.]

APPENDIX A

THE INET GATEWAY TRIAL

Cynthia Durance
National Library of Canada

Peter Wolters has introduced you already this morning to what the iNet Gateway Trial is, and before we do a demonstration of this trial, it seems useful to explain its features. As Peter said, it is a trial mounted not by us, but by one of Canada's two common carriers: the TransCanada Telephone System, which translates in Ontario and Quebec into Bell Canada and in other provinces into their provincial telephone companies. It is an association of telephone companies across the country. The purpose of libraries' participation in the trial was first of all to test the open systems concept, the Open Systems Interconnection model which has been developed by the International Organization for Standardization (ISO), and also to test the new technology, not separately, but in conjunction one with the other. It was important, we felt, not just to look at the electronic mail or videotex, or whatever, but to look at all these technologies working in conjunction.

The National Library began working with Bell Canada in the summer of 1980, and with the library participants in the winter of 1981. Therefore, we had a year and a half of designing projects for the trial and generally planning for the trial phase. In retrospect, that year and a half was extremely well-spent. The trial began ten months ago and it will end in July of this year, so we have had ten months' actual experience with it now.

I would like to explain to you rather quickly the basic features of this trial, so that when you see the demonstrations you will understand what you are seeing. iNet stands for Intelligent Network. Its service concept has a business market orientation. It was developed by the Computer Communications Group of the TransCanada Telephone System and also by Bell Northern Research, who did the technical development. It includes both Telidon or videotex—Telidon being another name for videotex or alphageometric images (they are all synonymous)—and alphanumeric applications. It provides access to many different information databases from a single access point. Figure 1 (see page 68) provides a graphic of the trial. On the left are the first components, which are the terminals. We are using three kinds of terminals in the trial. The first is the standard ASCII terminal with which you are all familiar. The second is the alphanumeric/alphageometric Displayphone; the Displayphone is a telephone and a terminal but it is also an alphageometric terminal and an alphanumeric terminal. The third type of terminal that we have been using is the alphageometric, the videotex terminal.

These terminals are connected to what is called the network access node (NAN) by the telecommunications network. There are three ways of connecting to the network access node: Datapac, which is one of the Canadian packet-switched networks, similar to TYMNET, by a direct dial, or by private telephone line. Most of the connections are done through Datapac.

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TERMINALS

iNet Gateway Trial

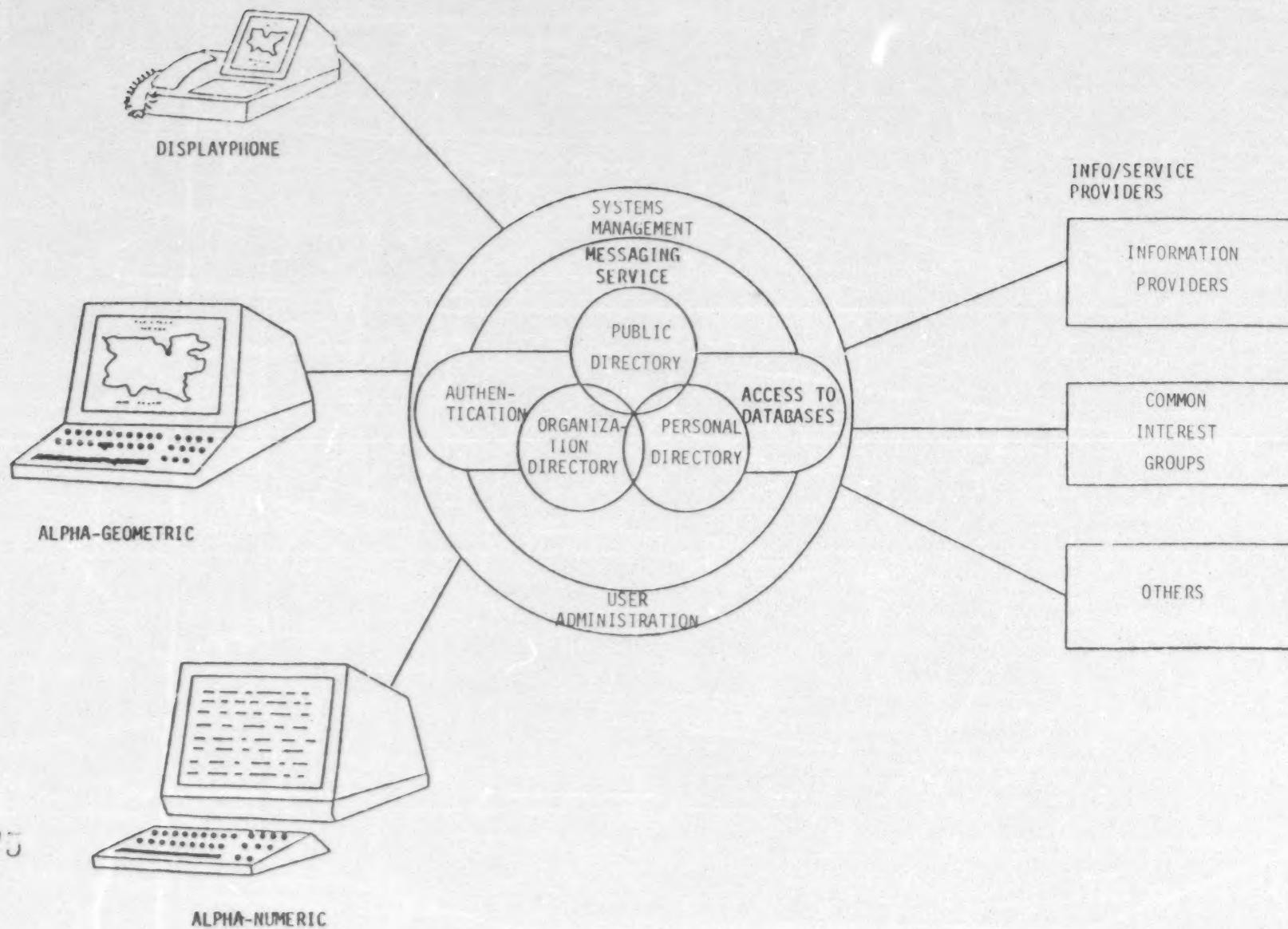


Figure 1

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The network access node provides us with the value-added services of the trial, the first of which is the authentication service. It provides I.D.'s for users, passwords, and other security features. Each user can customize their own use of iNet to the extent that they can set their own profile, i.e., which language they wish to use (English or French), the type of terminal they are using, whether they want help messages displayed, and what aspect of the system they wish displayed first at sign on.

The second value-added feature is the directories. These are catalogs of databases that are accessible in the network. There are three types of directories: the public directory, the organizational directory, and the personal directory. The public directory is a subject and service catalog, listing all the services and databases available within the network, (about 350 databases at this point). The public directory is analogous to the Yellow Pages in your telephone book. It gives you menu selection and key word search, and it can be seen by all users of the network service.

In contrast is the organizational directory, the structure of which is defined by the common interest group, that is, a group of organizations, or an individual organization. It is similar to the public directory except that it is seen only by members of that organization or group. It contains directories of all of the databases which are available to anyone in that organization, which means that you can have databases that are listed in your organization directory but not in the public directory, and, therefore, are accessible only by members of your organization.

The third type of directory is the personal directory. This one is defined by and is personalized to each user. It lists your ten most frequently accessed databases. It is seen only by the user, and it provides faster access to those databases—one-step instead of two-step access.

Another feature of the value-added services of the network access node is management and administration. It provides help messages, general user assistance, and network messages indicating, "this database is up," "this database is temporarily down," "this is the new database added," etc. It also provides monitoring of the diagnostics of database connections to the network, i.e., trouble in the network. Traffic statistics are produced on a monthly basis and in later phases there will be user account maintenance features added.

The final feature of the value-added services is the automatic access and connection to various databases available on the network. There are four categories of information services available. First, a nationwide messaging service, called ENVOY 100, is provided. Second, there are videotex databases, such as Vista, which is a large videotex database that has been developed by the Canadian government in conjunction with the TransCanada Telephone System. Third and fourth, there are also private sector commercial and noncommercial information provider databases available.

All of the participants in the field trial are being provided with all of the telecommunications services—the terminal, rental and maintenance, and access to the network access node—free of charge for the one-year period of the trial.

The field trial worked on an organizational concept of the common interest group. A common interest group is a group of users who have similar needs and need to access similar databases. Each group acts as a kind of subset in the network but is also able to access the databases available generally in the trial.

Databases that are available in the network right now include Infoglobe (which is similar to the New York Times database) of the Toronto Globe and Mail; Infomart, a very large videotex database supplier; Official Airline Guide, which comes to us from Chicago; Q-L Systems, a Canadian database that was originally legal and is now multipurpose; I.P. Sharp, which as some of you may know is one of the largest information processing companies in the world and does all U.S. airline reservations; Financial Post; Data Vision, a Telidon database; Project Grassroots, an agricultural Telidon database; NOVATEX an international videotex database, connected to iNet via Teleglobe, the international packet-switched carrier; Orbit; CAN/OLE; five library databases; and others from commercial suppliers. In total we have over 30 systems available, comprising over 300 databases.

This then is a brief summary of the features of the iNet trial.

I would like now to talk about the participants in the Field Trial. The following sectors are represented: banking; bibliographic; energy, in the form of Gulf Oil Ltd.; real estate by Canada's largest real estate company, A.E. LePage; communications by the Canadian Broadcasting Corporation; legal services by the Ministère de la Justice in Québec; and travel by the Bay Travel, a large travel company within Canada. The Canadian Government is also using iNet to demonstrate videotex technology: they have terminals in 30 Canadian embassies around the world, and they are accessing iNet via Teleglobe.

The Bibliographic Common Interest Group consists of the Canada Institute for Scientific and Technical Information (CISTI), and six other information providers: Carleton University, the University of Guelph, the National Library of Canada, the Université du Québec, and the University of Waterloo; the National Library of Canada also serves as Coordinator. It is important to realize in looking at this list that it represents a variety of types of databases running on a variety of hardware with a variety of software. CISTI has made CAN/OLE, which is a large information retrieval database running on an IBM mainframe, available within iNet. Carleton University has their cataloging database running on a Honeywell mainframe. The National Library has the DOBIS database available, again running an IBM mainframe. The Université du Québec, by contrast, runs its system on a VAX-11/780 DEC minicomputer; it is noteworthy that this database is a union catalog of ten campuses at the Université du Québec, campuses which stretch right across the province of Québec, so it is a province-wide network on its own. The University of Guelph and the University of Waterloo both run on GEAC minicomputers and they both have circulation systems available at this stage in their development.

The Bibliographic Group decided to do seven projects in the trial to test various things. The first was obviously to interface the database of each institution to the network access node using a standard X.25 interface. The second project was to develop the directories of services for each of our databases and to have them loaded on the network access node. The third was to test derivation of bibliographic data from the various network-connected hosts. This is noteworthy in that of those

six library databases that are available, one is bilingual, one is French language only, and four are English language only, so we were also testing the ability to use French cataloging records in an English cataloging database, etc. The fourth project was the use of electronic messaging for interlibrary loan. Some of the earlier speakers have talked about the speed with which technology is overtaking us. For example, when we began to plan this trial two years ago electronic mail for interlibrary loan messaging was a very new thing and now, of course, it is an accepted method of message transmission. The fifth project concerned videotex database creation. We have created videotex databases for various library applications. Some of those you can see on the Business Telidon Service during the demonstration. The sixth project was to test the use of many information provider databases for information retrieval, including both alphanumeric databases and videotex databases. Many of those databases, of course, libraries have used for many years; many of them are new to us. We were concerned in finding out if a service like iNet increased efficiency of staff in using multiple databases.

The final project was the most ambitious. It is the prototype of bibliographic file transfer; the programs for this are being tested right now and will be operational, we expect, by the fall of this year. As someone mentioned earlier, these programs will allow transfer data from one system directly to the other.

I would like to conclude by explaining to you very briefly what we see as some of the benefits of this network development approach. First of all, the cooperation among the private sector, that is, the common carrier, the government libraries, and the individual libraries, has been most encouraging during this trial. There has been a tremendous amount of work put into the libraries' use of iNet by all the institutions involved and, of course, it is important to remember that we were all working in a completely new area. That was true also for the telecommunications common carrier. They were developing new services for which they had no precedent. Another great advantage to the open network approach that we see is the ability to share data while at the same time retaining local autonomy within your own institution and your own system. The network begins where your own institution leaves off. It is an add-on to the work that you traditionally do in your own institution in your own way. A third benefit is that all the databases in the network, large or small, are equal. They have absolutely equal status in terms of access, availability, etc. Fourth, the ability to access the databases simultaneously from the larger information world as well as from the library world is seen as advantageous. It has been very interesting for us to be working in the same system with industries as diverse as the petroleum industry, the banking industry, etc.

Another great benefit that the trial has given us and that will continue is the increased visibility of libraries and librarians' expertise in the information world at large and also in the telecommunications industry. When we began this trial, I do not believe that the people at Bell Canada knew very much about libraries nor even thought that they needed to, but I believe they have changed their minds over the past two years.

I believe that there are three possible scenarios for a nationwide network in Canada. First of all, one can buy all value-added services from a common carrier. Second, one can build all the value-added network services on one's own system. Both of these alternatives have advantages and disadvantages which I will not go into this morning. The third alternative is somewhere halfway inbetween. One can

buy some of the value-added services from a common carrier and at the same time build some of those services on one's own system. This scenario I am certain will be the one that we will implement in Canada in the future. It is, in fact, the true open system interconnection concept.

In conclusion, I would like to say that the iNet Market Trial, to be called iNet 2000, will begin in July. There will be a new release of software at that time which will provide some added functionality. We plan to continue in the Market Trial, but unlike in the Field Trial we will have to pay, and having to pay is a very sobering thing. Therefore, we will probably be using iNet in a reduced manner from the way in which we have been using it in the Field Trial when we did not have to pay for services.

In addition to working in the Market Trial, the National Library will be working with Canadian libraries during 1983-1984 to build some standard programs for use on all systems such as micros, minis, or mainframes for those functions which the experience of iNet has taught us may be more cost-effective to build ourselves at this stage in development. These include the file transfer software, some generic messaging software for interlibrary loan requests and for book orders, and some work on the common command language.

APPENDIX B-1

LIBRARY NETWORKS: THE CANADIAN EXPERIENCE¹

Basil Stuart-Stubbs

School of Librarianship, University of British Columbia

In the year 1900 the city of Montréal was host to the annual conference of the American Library Association (ALA). Among the four hundred and fifty-two delegates who gathered not far from here at the Windsor Hotel on Peel Street were many persons now recognized as pioneers of librarianship. Richard Bowker, founder and publisher of the Library Journal, was here to record the proceedings. Melvil Dewey attended, and so did C.A. Cutter; they were both well known for their systems of classification. Charles Martel and J.C.M. Hanson, colleagues at the Library of Congress (LC), were also present; they were engaged in developing a classification scheme for that great library. Of those who attended about a third were identified as chief librarians, and indeed every major public, academic and government library in the United States and Canada was represented here by its director. It was the first time that Montréal served as the site of an international congress of librarians. But what made that conference more than a coincidental precursor of this one was its theme, which was cooperation among libraries, an activity we now prefer to call networking.

In 1900, the Chairman of the Cooperation Committee was Ernest Cushing Richardson, the Librarian of Princeton University. His committee's report spoke of the need to eliminate the duplication of cataloguing work among libraries, and it proposed the establishment of a centralized bureau of cataloguing, one that would also produce and distribute catalogue cards. It recognized that the success of this bureau would depend on the standardization of cataloguing: to deal with this, the ALA established at that meeting a committee on cataloguing rules and subject headings. It foresaw that this accumulation of bibliographic records might serve as the basis for a national bibliography and union catalogue. In short, the essential elements for a bibliographic network were understood and articulated long ago, here, in Montréal.

Local arrangements for this conference were the responsibility of the Librarian of McGill University, Charles Henry Gould, an ardent believer in the advantages of library cooperation. Later in his career, in 1912, as Chairman of the ALA Committee on Co-ordination, he initiated the development of the first interlibrary loan code. Three years previously, in 1909, when Gould was President of the ALA, his keynote address to the conference described a national system of regionally located "reservoir" libraries, acting not only as storage libraries but as major reference libraries. He noted the possible relationship between these libraries and the production of bibliographic records, and spoke of the possibility of rationalized collecting policies. In short, he had a vision of networking, which he attempted to communicate to his listeners with these words:

"One sees ... a chain of regional libraries throughout the United States and Canada, because the scope of such institutions ought to be avowedly

continental if not international, and because in certain respects—in her relatively few libraries, her great distances and small population—Canada seems to be ideally placed for making an initial experiment of this nature."²

I mention these historical facts to demonstrate that network principles were understood long ago. The distinction between a bibliographic network for records and a resource network for documents was similarly understood. So was the relationship between these two networks. However, our predecessors had not found the word "network" or chosen the phrases "Universal Bibliographic Control" or "Universal Availability of Publications." I also wish to use this occasion to remember and honour our predecessors, and to identify Charles Henry Gould as the father of Canadian networking. Obviously, we have had a long time to develop networks in Canada. But to what extent have we realized Gould's vision?

In the first place, he may have been wrong in believing that Canada provided an ideal environment for a network experiment. A humourist has said of my country that it has too much geography. This is true. Physical distances are great, and the population is unevenly distributed from coast to coast along a relatively narrow band of habitable territory. We have two official languages, deriving from two different European cultures with different conventions and traditions. Our two communities have attracted immigrants from around the world, and millions have arrived here. Approximately one out of six Canadians was born in another country. The political and economic organization of the country has combined with these other factors to create strong tendencies toward regionalism and provincialism in all aspects of life. Ours is not a homogeneous nation with an identifiable single culture. Every region has its own special character.

As for libraries, they reflect the national situation. Information resources are also unevenly distributed across the country, with the concentration being in the triangle formed by Toronto, Ottawa, and Montréal. As a result of its relatively small population, less than twenty-five million, Canada is a net importer of information in all forms. Most of what is read, or seen in theatres or on television, originates in other countries, mainly the United States, France, and the United Kingdom. This certainly provides for a rich experience, but it militates against the development of a national culture; thus our cultures, both French and English, require constant protection and support by both federal and provincial governments.

Resources are also unevenly distributed among types of libraries. In the last two decades, academic libraries have been growing at a faster rate than public libraries, and they have enjoyed greater access to computing equipment. National library services and collections have also been late to appear in our history, but have grown dramatically in the last quarter century.

These factors have tended to make library networking in Canada localized, ad hoc and unintegrated. It is almost natural for a group of libraries of one type to create within a region or province or city small networks for the sharing of bibliographic records and collections. The information and communications technology essential to contemporary networking having been developed to overcome Canada's great distances, our greatest problem has not been in establishing networks, but in coordinating their development and providing for their integration on a national basis. To assist in this work, we must rely on both our

library associations and our national libraries, themselves working in harmony.

Successful networking on a national scale is based on the development and adoption of standards of various kinds. Since we import so many publications from other countries it is essential for us to use standards developed in those other countries, adapting them to the Canadian situation as necessary. For example, the LC classification is widely used in Canada, but with special expansions for Canadian literature and history, developed by the National Library of Canada (NLC). The NLC has also developed a bilingual personal and corporate Canadian name authority file, used in our national bibliography *Canadiana* and also by LC, thus guaranteeing international uniformity. Subject headings present a formidable problem. Although LC subject headings are widely used in Canada, they arrive here in the English language. The development of a standard list of subject headings in French takes place at the Université de Laval, working in cooperation with the Université de Montréal, the Bibliothèque Nationale du Québec (BNQ), and the National Library of Canada; this list is based on the work of the Library of Congress, is furnished with indexes in French and English, and is now in machine-readable form. This version has been mounted by the University of Toronto Library Automation Systems (UTLAS), which will enable cataloguers to search for subject headings in French and transfer them online to MARC records originating in anglophone countries. Tape versions from UTLAS will be used by the National Library of Canada to produce a printed edition with updates. This illustrates the complexity of networking in a bilingual country, but also demonstrates that it can be done.

Working through the Canadian Library Association and the Association pour l'avancement des sciences et des techniques de la documentation (ASTED), Canadian libraries participated in the development of Anglo-American Cataloguing Rules I and II. Translation of these was undertaken by librarians at the Université de Montréal and the BNQ; ASTED holds world publication rights. As for machine-readable bibliographic records, our CANMARC format was developed by a task force of the NLC, is closely related to other MARC formats, but is unique in being designed for use in both official languages. The NLC operates a MARC distribution service, reformatting other national tapes into CANMARC format, and selling both complete tapes and selected records. Through this service the NLC also distributes the CANMARC version of our own national bibliography. In this connection, it should be mentioned that the NLC operates a Cataloguing-In-Publication (CIP) programme, contracting out this work to libraries located in regions; for example, the University of British Columbia Library provides CIP copy for all participating non-government publishers in western Canada, and this copy is used by the NLC as the starting point for its own CANMARC record. The foregoing illustrates the variety of network arrangements employed to ensure a consistent national bibliographic record, and one that can be related to national and international networks.

As for computer-based cataloguing services, Canadian libraries have a number of alternatives, the principal being the previously mentioned UTLAS. Development of the software on which this service is based commenced before that of OCLC, and UTLAS today remains second to OCLC in the number of its users in North America, although a distant second. Some users of UTLAS have themselves formed provincial consortia, for example Réseau informatisé de bibliothèques/library information network (RIBLIN) in Quebec and the British Columbia Union Catalogue (BCUC) in British Columbia. For its part, the National Library of Canada operates a

cataloguing service for federal government libraries based on a version of Dortmund Bibliothekssystem (DOBIS). New modules for that system are used to produce the national bibliography Canadiana and maintain the National Union Catalogue of Books and Serials.

There are other smaller systems, some developed, some developing. Le Banque de donnees automatisees de l'Universite du Quebec (BADADUQ) is now emerging in its second version, linking ten campuses of that institution. Several libraries in Canada have installed an online circulation and catalogue inquiry system developed at Guelph University, and known as GEAC; work is proceeding on developing a catalogue maintenance module and on creating links between GEAC users. Similarly there are other commercially available circulation systems with the potential for growth into comprehensive operating systems for libraries, and ways must be found to relate these individual installations to networks.

In respect to the other bibliographic network, the information retrieval network, Canadian libraries can access directly a number of major service centres such as BRS and Lockheed/DIALOG. There are also Canadian brokers, such as INFOMART, QL Systems and Informatech, and our national science library, the Canada Institute for Scientific and Technical Information (CISTI) has for over a decade provided access to a variety of major data bases as well as to a number of smaller uniquely Canadian data bases.

There are, in fact, so many bibliographic networks of various kinds that many Canadian libraries participate in several. What is missing in this increasing proliferation of government and private-sector library and information services is integration. This is a matter of concern to all Canadian librarians, and the NLC has responded through its Office for Network Development by carrying out research, creating task forces and committees to deal with specific areas, and working with other government agencies and the communications industry to overcome problems. The major problem being the inability of existing systems and networks to relate to one another, the focus of attention has been on the development of computer-to-computer protocols for the communication of machine-readable information. A major experiment is under way at the present time, under the name of iNet/Gateway trial. If this experiment succeeds in showing how incompatible systems can communicate with one another, we will have taken a major step forward in solving any problems arising out of the regional tendencies of our country.

Thus, there is in Canada a highly developed bibliographic and communications network, but it is tangled. It was not centrally planned, because our political and social conventions make central planning difficult. It is not a perfect nor a logical network, but it functions, and with further technological development and collective action, it will function better. If these experiments succeed we will be able to integrate regional and local systems on a nationwide basis, while preserving their autonomy.

I turn now to a discussion of the resource and document delivery network. In 1900 it was reported that Canada's libraries contained about 2.5 million volumes. Today Canada's libraries probably contain more than 100 million volumes. It is an impressive figure. From the network point of view, the question is: are these materials universally accessible?

Since 1950 the NLC has provided a location service through its Union Catalogue of Books. Like most such files, it was maintained on cards submitted by about 350 major and special libraries in Canada. However, the card file was closed early in 1980, and since then all incoming accessions have been entered into the DOBIS system to create one of the few online union catalogues in the world. The Union List of Serials is similarly maintained on DOBIS. In recent years the NLC has responded to about 175,000 bibliographic search requests annually. Although the NLC is a relatively young institution, 26 percent of these requests can be satisfied from its own collections. For half of the requests, locations are found in other Canadian libraries. For 24 percent no location is found. However, the NLC is not the only source of location information for Canadian libraries. CISTI maintains the Union List of Scientific Serials in Canadian Libraries, which is available both in published form, and online. In addition, there are a number of provincial union catalogues, recording the monograph holdings of smaller libraries that do not report to the NLC, and there are numerous union lists of serials at the provincial and local levels. Although the primary use of UTLAS is for cataloguing services, it too can be used to obtain location information. Canadian libraries also have access to many location tools and services originating in the United States, and some also participate in their development, thus the holdings of Canadian libraries may sometimes be found outside our national borders. While the situation may cry out for rationalization, one thing is true: an informed librarian can usually locate a desired item, either in Canada or the United States. In this respect we are more fortunate than many nations in the world. But can the items we locate be obtained quickly?

Although most libraries use telex or electronic mail for obtaining location information, and increasing numbers use these same means of communication for sending requests for items, the publications themselves, or photocopies of them, are usually sent by mail. Postal services, as we all know, can be slow. It is not fair to say that Canadian postal services are always slow—sometimes they are very efficient—but it is true that they are inconsistent and cannot be relied upon for regular service. For this reason, many libraries have sought other forms of transportation. There are a number of regional, provincial, and local courier systems, and within their geographic areas these function well. Notable examples are the *Prêts entre bibliothèques des universités de Québec/Universities Interlibrary Loans (PEBUQUILL)* in Québec and *Interuniversity Transit Service (IUTS)* in Ontario. These systems intersect in Ottawa to ensure rapid delivery among libraries in these two large and central provinces. Moving library materials between distant points is best accomplished by special air courier services, although these are expensive. CISTI and the NLC have now established a bulk air freight delivery system to a number of cities very far from Canada's capital: Halifax, Calgary and Vancouver. In any resource network, smaller libraries will inevitably depend on larger libraries. In Canada, the two national lending services based at the NLC and CISTI supply the greatest number of items, about 186,000 items in 1980-81. Because university libraries in Canada generally have the largest and richest collections, they are also a major source of materials on interlibrary loan. But as the number of loans increases, or, if you prefer, as networking succeeds, the amount of work performed by these libraries increases. Unfortunately, many large libraries in Canada and the U.S. are experiencing a decline in financial support, and some have therefore imposed an interlibrary loan fee, a step which shocked many librarians who had assumed that such services should always be provided at no cost. This break with tradition has awakened librarians to a new understanding of the

difference between free information and freedom of access to information.

To summarize, there are many library networks in Canada, and undoubtedly there will be more. These networks are not perfectly integrated or coordinated, and it is doubtful that they can be. Canada has developed excellent national services of other kinds in the areas of transportation and communication, but it can not boast of a Great Canadian Library Network. If one attempts to imagine such a network, one sees that it would be so large and complex that it would suffer from the kinds of bureaucratic, managerial, and economic problems that now affect our postal services. Thus there is virtue in our present mixture of large and small networks, operating for different purposes in different geographic areas. I believe it is now theoretically possible for any Canadian citizen to obtain a copy of any specific published item he wants: the network structures to make this possible are all in existence, despite their complexity. But we must admit that in Canada there is a gulf between this theoretical possibility and actual practice. Why?

I suggest that there are two factors, not the subject of adequate attention, which can make the difference between success and failure in networking, both in Canada and in other countries. These two factors are human and economic. Much of the literature of networking stresses theory, methodology, organizational structures, and computer applications. But ultimately all attempts at coordinating human activity depend on the participation and commitment of individuals, and so it is with networks. It is not easy to obtain this commitment partly because unlike the libraries in which we work, networks are invisible, or if they have a visible component like a computing centre or a storage library, they are at a distance. Thus networks do not have the physical presence of the libraries in which we work every day. Our own libraries take a natural precedence in our consciousness. Networks become a second or lesser priority.

Thus it happens that librarians often fail to create or sustain the essential conditions for networking, beginning with the most basic: standardization. Whether we consider cataloguing rules or MARC formats or interlibrary loan codes, librarians are predisposed to make those little departures from standards that suit the immediate convenience of their own libraries, regardless of the consequences for present or future networks. We are an army that is never in step. What we require is a reorientation in our thinking about library services, so that we think in terms of networks as well as in terms of individual libraries. To achieve this intellectual reorientation and commitment, I believe that we must rely partly on our national libraries, partly on our teaching institutions, and ultimately and perhaps most importantly on the administrators of libraries. In Canada our national libraries have provided a good measure of leadership, and I believe our schools of librarianship are doing their best to inform a new generation of librarians about the principles of networking. But it is the old generation, our generation, that must demonstrate to our working colleagues our belief in the necessity for an viability of networks. If the director of a specific library is not committed to the objectives of networking, and does not inculcate this commitment in his subordinates, that library will not participate effectively nor benefit from a network of any kind. This is the human factor so often missing in network development.

The second factor affecting networks and still one imperfectly understood, in my opinion, is economics. I refer to what might be called the economics of information transfer in society. For their survival and effective functioning our

societies depend on the constant transfer of information of all kinds via all media. Among these media are our libraries, acting as agencies for the collection, storage, and transmission of information produced by other groups in society, principally publishers of books, journals, newspapers, microforms, etc. At every step of the process, some costs are incurred. The author, the publisher, the printer, the papermaker, the bookseller, the database compiler, the information retrieval agency, the librarian, all must be paid. The question is: who pays, and when? To what extent is the information transfer process paid for by the government, or by the individual? What kinds of information should the individual citizen expect to pay? These questions will be answered in different ways in different countries, but they lie behind the more specific questions that are now raised in a network context. Should bibliographic records be in the public domain? Should there be interlibrary loan fees? Should libraries provide free access to electronic information retrieval services? Should libraries pay more for subscriptions than individuals? Should there be public lending right legislation? Should copyright laws include a reprographic right?

In Canada and I believe also in the U.S., there is now uncertainty and tension between public and private sector information services. Those in the public sector speak of social responsibility and the requirements of a democratic society. Those in the private sector speak of the relationship between economic reward and the creation of new information. There is a pressing need, I believe, for a new examination of the economics of information, one leading to the articulation of a new philosophy, incorporating a statement of broad social objectives, a philosophy which will make it easier to answer specific questions and to resolve problems.

The need for this philosophy will be all the more urgent as the technology of information storage and transfer develops, and more information is converted to electronic formats, both digital and visual. Libraries today are mainly print-based institutions. Their collections consist of published materials which they own and which they can put to any purpose at any time. In contrast, the world of electronic information is a world of unpublished information: it remains unpublished and centralized in a database until it is demanded. If, for example, many scholarly journals are superseded by electronic journals, where will the data bases be located, who will control them, how will they be made available on a universal basis, what will the costs be and who will pay them? For Canada, now and forever a net importer of information, these will be major questions in the coming decades. And they are major questions for those involved in the development of Universal Availability of Publications (UAP) concepts and practices.

In this paper, I have attempted to display many facets of the Canadian experience in library networks, the main point being that there is no single network, but a multiplicity of overlapping and interdependent networks. There are some practical difficulties of network linkage to overcome, and we are at work on these. There probably never will be a time when there is a fixed and immutable set of arrangements and interconnections. The Canadian network environment is dynamic, and there is no end point. Perhaps that is its strength: that it must and will always be empirical, pragmatic and flexible, evolving in response to new technological developments and changing user needs.

References:

1. This paper was originally prepared for the 48th General Conference of the International Federation of Library Associations and Institutions in Montréal, Québec, August 22-28, 1982.
2. Gould, Charles Henry. "Co-ordination, or method in co-operation." American Library Association Bulletin, 3:122-238, 1909.

APPENDIX B-2

RLG'S RESEARCH LIBRARIES INFORMATION NETWORK

Tina Kass and John Schroeder
Research Libraries Group, Inc.

I. System Overview: Spring 1983

The Research Libraries Group operates the Research Libraries Information Network (RLIN) to support all of its general programs: Shared Resources, Collection Management and Development, Preservation, Technical Services, and various subject based programs such as Art and Architecture, Music, Law, and Health Sciences. As the bibliographic utility for RLG, RLIN has been developed to respond to the special requirements of research libraries and will continue to move in directions described by its member-owners. At this time, RLIN includes the following components:

- a cataloging system that supports online library-specific record creation and maintenance and standard product generation (cards, tapes, lists);
- an acquisitions system that supports online library-specific record creation and maintenance and standard product generation (purchase orders, claim notices, printed processing forms, lists, etc.);
- local site printing capacity for production of acquisition forms;
- powerful information retrieval capacity, including subject and classification access;
- an interlibrary loan system linked to central bibliographic files; and
- special data bases that support specific scholarly interests:
 - On-line Conspectus
 - Avery On-line Index to Architectural Periodicals
 - English Short Title Catalogue
 - SCIPPIO, online index to art sales catalog

In addition, the following enhancements to the basic RLIN systems provide members with the ability to address special problems of bibliographic control and access:

- East Asian enhancements will extend basic RLIN support of cataloging and acquisitions to materials in Chinese, Japanese, and Korean scripts (available summer 1983).
- Preservation enhancements allow libraries to store and retrieve information about the preservation status of materials and produce

union lists of such materials (available now).

- Archives/Manuscripts support will provide members with the ability to handle all archival materials processing in an automated system (available end of 1983).
- Computer-to-computer links will provide RLG members with online access to other systems and authority data exchange between WLN, LC, and RLIN (available early 1984).

Service Hours: 5 a.m. to 6 p.m. Search and Input
 6 p.m. to 9 p.m. Search

Terminals: 600

Response Time: 75 % of all commands executed in 2.5 seconds or less
 95 % of all commands executed in 8 seconds or less

Data Base Size (as of March 1, 1983):

Books	6,532,051
Serials	1,031,533
Scores	66,395
Sound Recordings	27,326
Films	66,978
Maps	82,357
Authorities	2,265,236
Special Data Bases	151,257

Transaction Levels:	Cataloging	118,000/month
	Acquisitions	42,000/month
	ILL	9,000/month
	Catalog Cards	1,450,000/month
	Tape Records	178,000/month

II. RLIN in the Future

The dominant trend in computer technology today is to place greater capacity in the hands of end users. In the university this trend, reflected in intelligent terminals, word processors, and personal-professional microcomputers, has accelerated dramatically in the last two years. In fact, computer equipment on the campus has proliferated in so untrammelled a fashion that research universities face the prospect of being populated by a multitude of computers unable to communicate with one another—a computerized tower of babel.

Within the university, technological developments have had a revolutionary impact on the library. Technology has undoubtedly proved a boon to libraries, providing them with sophisticated bibliographic systems to organize and manage their collections. "Off-the-shelf" automated circulation systems and acquisitions systems are now widely available in the marketplace and are helping to transform the ways in which libraries have traditionally done business. Moreover, as the cost of capital equipment has decreased, more libraries have been able to enjoy the

benefits of computer technology.

Yet, as a prominent library director, Richard De Gennaro of the University of Pennsylvania, has noted, the costs and complexities of maintaining "black box" interfaces between various computer-based systems within even a single library are great and pose significant synchronization problems; no library can reap the full benefits of automation until it can implement a fully integrated system.¹

While technology is transforming the face of the library, it is also changing both the role of the library and the nature of the demands placed on the library by the scholarly community: the library's obligation to store and disseminate scholarly information is becoming more burdensome and more complex. Individual scholars are finding they have new and powerful tools to aid research and are revising their expectations of service from the campus library. Information processing and storage technology have made possible the creation of massive data bases and, through a variety of computer and telecommunications links, given library users improved access to the data and the ability to retrieve recorded information in a comprehensive and easy manner.

It is apparent that libraries will soon be patronized by students and faculty who, armed with personal-professional computers, will demand access to the online catalogs of the major university libraries in the country. Moreover, these patrons will want to lift bibliographic information from a central data base and store it in personal-professional computers for inclusion in text as quotes, footnotes, and bibliographies. The revolution in personal-professional computing capabilities—the growing capacity of the individual to create, store, and distribute information—will have a tremendous impact on the future course of computer systems development in the university context and place new demands and strains on the research library.

Furthermore, local area networks providing a variety of services— from text editing to electronic mail—have sprung up on campuses throughout the country. This development has begun to move research and scholarship outside the library and to disperse centers of scholarly information throughout the university. The advent of new communications technology for transferring information from storage devices to end-users, especially of broadband technology able to handle voice, conventional machine-readable data, and image data at the same time, will fuel this trend. As the traditional center of scholarly information on the campus, the library must find a way of communicating with other stores of information on the campus, whether they are part of the campus computing facility or are among the commercial databases that are increasingly important resources for research and scholarship.

Paradoxically, the proven success of computer technology in the library environment threatens to create major problems for libraries. The library must find a way to accommodate the demands that computer technology has unleashed and to respond rapidly and effectively to the needs of an increasingly sophisticated and widespread set of users.

1. Richard De Gennaro, "Libraries and Networks in Transition: Problems and Prospects for the 1980's," Library Journal, May 15, 1981, p. 1047.

As a corporation owned by 25 of the nation's major research institutions, RLG is acutely aware of the challenges described above. These trends will influence powerfully not only the individual members of RLG, but the partnership as a whole—particularly regarding the support RLG's principal programs receive from the Research Libraries Information Network (RLIN). For the past few years, RLG's systems development efforts have largely centered on building and enhancing the integrated technical processing system that RLIN provides from a central site to its members. But the long-term inadequacies of centralized computing are becoming apparent; and, as technology continues to advance, the limitations of RLIN's present configuration threaten to constrain RLG's ability to serve the research community. RLG's thinking about the future development of RLIN recognizes the need to draft strategic plans now to accommodate advances in computer and communications technology within an interinstitutional partnership; and the corporation is convinced that its future must see a move to a distributed processing environment.

Increasingly, RLG's member libraries wish to do their own processing without resorting to expensive telecommunication links. Some members, such as Northwestern University and Pennsylvania State University, have developed in-house online catalogs and require interfaces that will allow them to pass records between the central RLIN data base and their local systems. Other members have purchased off-the-shelf components of automated library systems and look to RLG to develop interfaces to link RLIN to a local circulation or acquisitions system. Still other members, such as Brown University and Dartmouth College, are part of sophisticated campus networks, and are faced with the challenge of moving information from RLIN to other local centers of information on their campuses. Over the entire partnership, the number of local systems, area networks, and regional networks with which RLIN must someday interface is formidable; the standards and protocols issues and database management problems alone are staggering.

These local demands prompt RLG to plan the implementation of a distributed network without delay. The advent of patron access also makes this development essential. As noted, the computer terminal is now a familiar fixture in research libraries; in fact, many RLG institutions are already installing public service terminals to give scholars the potential to search the RLIN database. In a few years, the personal computer in the hands of the library patron will be as familiar as the cataloging terminals in the library. The researcher will demand the ability to locate and retrieve scholarly information, whether it is held locally or at a distant institution, without the intervention of a librarian. No central computing site could support this inundation of scholars and researchers; yet, given RLG's commitment to patron access, the partnership must find a way to accommodate this level of activity.

In summary, RLG recognizes that its mission of serving the research library community and improving the scholar's capacity for research cannot be effectively carried out in the current technological environment. As the Council on Library Resources stated some years ago, "... it will take nothing short of a revolution of sorts to permit libraries in the future to meet service obligations, to contribute in reasonable ways to national informational objectives, and to live within the bounds of their own finite financial resources." At one time the RLIN network represented just such a revolution. Yet, what was once revolutionary technology threatens now to become obsolete. If RLG is to meet the needs of its members and to give

scholars their "personal windows into the expanded world," it must begin strategic planning to develop a technical framework that will assist, rather than restrict, research activities; it must begin the design of a distributed processing environment.

Although RLG — both members and central staff — believes that distribution is both necessary and desirable, no one denies that the path toward such a system is littered with potential problems and pitfalls. Following are some of the perceived advantages and disadvantages of distribution.

The advantages can be summarized as follows:

- Provides a way of dealing with the kind of transaction load that is probably unsupportable in a purely centralized system.
- Places certain applications and data that are inherently local at their point of use.
- Responds to the desire on the part of the member institutions to exercise more control over their computing destiny.
- Because of the distribution of hardware, software, and data, makes the total system less vulnerable to single-component failure.
- Allows processing capacity to be added to the total system in smaller increments.
- Has the potential for providing more responsive online access.
- Allows for a substantial increase in function.

Some of the potential disadvantages are:

- An increase in total cost, at least at the start of the distributed system's life cycle.
- An increase in system complexity.
- A substantial increase in the local operational burden beyond the degree currently experienced.
- A drain on central site income that could produce a state of economic disequilibrium.

Trying to trade advantages off against disadvantages at this point is of academic interest only, since the actions taken by our members represent a de facto decision to distribute. It is necessary, however, for RLG to study the disadvantages in sufficient depth to determine ways to mitigate them, or to eliminate them altogether. It will also profit us to understand further the perceived advantages of distribution, so that we can find ways to maximize these.

APPENDIX B-3

NETWORKING 1983: SOME COMMENTS FROM OCLC

Rowland C.W. Brown
OCLC, Inc.

I have been asked to provide you with my thoughts on how networking has changed since Henriette Avram presented her paper "Network-Level Decisions: Basis and Key Issues" at the 1981 Pittsburgh Conference.¹ I would begin by saying that things have changed not at all, and yet they have changed significantly. Basic questions remain unanswered, and new issues have emerged and are being dealt with in imaginative ways.

Our environment has changed, and continues to change, in many and subtle ways. Paradoxically, new technology allows and encourages new and closer relationships among libraries while at the same time it permits greater independence. As I view the library ecosystem, I see networking, already a bewildering maze of interdependencies, becoming yet more labyrinthine. With increasing options made possible—indeed required—by changing technology and with an increasingly computer-literate faculty and populace, we are, at once, turning our attention to our own institutions and away from grand national designs; at the same time we are becoming increasingly aware of the need for national, and even international, standards, of expanded resource sharing capabilities, and of national bibliographic systems that can remain economically viable in a rapidly changing environment that allows for, even rewards, system anarchy.

Let me point out, at the outset, that the definition of "networks" used by Ms. Avram and Warren J. Haas differs from our—OCLC's—common usage of that word. In the Avram/Haas context, a library network is "...a system of computer and communications capabilities, established and organized to serve a purpose of value to libraries and their users." Definitions of the term network have grown in recent years, as one can easily perceive from the number of articles, symposia, and even journals devoted to library networking. Indeed, as pointed out in the discussion of "networks" in John Naisbitt's interesting book *Megatrends*, as we become increasingly dependent upon technology, we become equally concerned about how we link with other people to accomplish our needs through this sharing. In any case, we believe it encompasses many resource sharing and other services, including, but certainly not limited to, electronic services. Indeed, in the case of the Research Libraries Group (RLG), it is the programmatic goals, which require inter-institutional collaboration (another term for networking) for their fulfillment, with which OCLC finds most identity of interest.

Networking is occurring at all levels, but it seems to be moving more and more toward smaller or special purpose groups. For example, state and regional network organizations—referred to as "service centers" in Ms. Avram's paper—have always been an important part of OCLC's efforts to meet the broad range of library automation needs that cannot be satisfied solely through an online system. But, as federal and private funding decline, we are also keenly aware that there is an increasing number of

1. "The Challenge of Change—Critical Choices for Library Decision Makers." University of Pittsburgh School of Library and Information Science, November 1981.

state-funded systems, aimed largely at state resource sharing, automation, and database development. OCLC will no doubt have a role in these developing state-based systems, but we are at the same time determined to do our part to insure that such developments do not ignore the competing or different needs of those national, multi-state, and institutional groups that have been painstakingly nurtured and developed over the years.

Below the state level, we expect to see the formation of more local clusters, such as the Colorado Alliance of Research Libraries (CARL), the Five Colleges, Inc., and the Triangle Research Library Network (TRLN) in North Carolina, to mount local shared catalogs and communication links, and even shared circulation systems.

Mrs. Avram noted that, in the international arena, some national agencies outside the U.S. seem to be more concerned about compensation and competition than in international resource sharing on behalf of libraries, publishers, and the public. Our recent experience would suggest that she is correct and that, far from abating, this trend has worsened. As a result, through innovative steps which we will announce later, we are taking the initiative in overcoming some of the obstacles to building an international bibliographic system and to international resource sharing.

There is a tendency in some of us, in addressing the needs of research libraries, to ignore the many growing local, state, and even international collective efforts. This causes problems for us as we address our ultimate broad missions, and it may be part of the reason for the lack of progress Ms. Avram referred to in 1981 and which, to a very large extent, continues to vex us today.

Clearly, there are many roles to be played by the different types of networks. We have accepted Mr. Haas's characterization of OCLC as the "undifferentiated national network"—which, as I have indicated, is rapidly adding an international dimension. In her paper, Ms. Avram described us as "a major data resource, possibly taking on the aspect of a central node of a nationwide network" (and she added by footnote that the term central does not preclude the development of such groups as the Research Libraries Group). Since she made this observation, OCLC has grown from 2800 member libraries to approximately 3900, with some 3000 others having access to some or all of OCLC's files. This will soon be increased significantly by the addition of members and users in Europe. RLG libraries now have access to OCLC (and they use it), without interference with, or diminution of, their involvement in RLG. By tapeloading their records into OCLC, they have the opportunity to have their holdings made known to the vast number and broad spectrum of other libraries—including some 76 ARL libraries—that are full cataloging members of OCLC. The OCLC system continues to expand in size, in the number of enhancements, and in the number of records. Its economic viability, already healthy, continues to improve, and the scope of its self-funded research and development activities is broadening significantly. At the same time it continues to engage with RLG and WLN in research funded by the Council on Library Resources.

OCLC has the largest database and the most comprehensive array of services available to libraries today, but we cannot, and are not, entrusting our future entirely to this extensive centralized capability. We know the future requires some different directions. For some time, we have believed that the primary growth in library automation in the 1980s will be in local options, either institution-based library systems or, increasingly, clustered or shared systems. We have committed ourselves to the development and support of cost-effective, comprehensive, local library systems which will be developed to integrate with the OCLC online system. But we are also working

closely with libraries, regardless of the types of systems they have developed or selected, in integrating them with the centralized online processes and services they currently access through OCLC. Our work with TRLN, Case Western Reserve University, and the Five Colleges, to mention only three, are the kinds of "linking" which engage our attention and our development efforts. Similarly, we are engaged in the development of various "gateways" in our system to ease access through the system to other data bases, and we are currently exploring the possibility of offering on our system various unique, non-bibliographic databases designed specifically for library use.

We would agree with Henriette Avram: we are not trying to emulate the "catalog" of a library, with its full authority control and its extensive and potentially unique approach to subject searching holdings in a limited database. We believe these functions, in their full amplitude, will best be designed into the local system of the institution or the cluster. Most research library institutions, regardless of the national bibliographic system they use, understand and accept this strategy. For this reason, we have not imposed a single, full authority control on our system. The deliberations of the Bibliographic Services Development Committee of CLR have tended to support this. We make available the Library of Congress Name Authority File online to all our users, and our training and documentation require its use when creating original records or when converting older records to machine-readable form. We have an ongoing quality control program combining reports from our users with continuing activity by our quality control staff. These have highlighted a number of errors and omissions in the LC Authority File. We also continue to wrestle with the appropriate cataloging of audiovisual materials, software, machine-readable data files, and materials not collected or cataloged by LC.

With regard to subject searching, however, we continue to explore the most effective way of providing the library patron with multiple levels of search. Subject access to the OCLC online catalog is an example of one of the needs research libraries have articulated to us, and we have long been casting about for a way to satisfy that need in a system-effective manner. Today we believe that access to our full database centralized system would be expensive and difficult to maintain and that in reality subject access belongs primarily at another, a lower, level. We are considering testing a limited subject search capability at OCLC, if it proves to be acceptable, but it will be to supplement, not to compete with or to replace, subject searching on the "local" online catalog—individual or clustered. We are also moving toward offline microcomputer enhancements that will both make our system more user-efficient and reduce telecommunication costs. An example of this will be demonstrated at the meeting in Banff.

Finally, as we move through this decade, we will be directing more of our additional research and development efforts toward the issue of materials access, or electronic delivery of facsimile material and stored electronic information. Although our bibliographic system is available 87 hours a week, our dedicated telecommunications network allows almost every major public, academic, and governmental library in the United States to access OCLC 24 hours a day, seven days a week. We plan to redesign the telecommunications network to take full advantage of high-speed data transmission—both terrestrial and satellite communication links—to make this access more cost effective.

I emphasize cost effectiveness because of a point Henriette Avram stressed in 1981, a point which has unfortunately been largely ignored. "We might ask ourselves," she said, "if these economic issues [compensation and cost recovery] are not the real basis for the lack of progress toward system linking in the United States." The issue is today, as it was yesterday and as it will be tomorrow, primarily an economic one, not a technological one.

We at OCLC are constantly working on linkages and gateways of various kinds, but we know we must ask ourselves: What can libraries, their institutions and their patrons sustain? What is the critical mass required to make this effective?

Another economic issue to be considered is that none of us can afford to invest in systems that are either suboptimized or are dependent on external funding for their maintenance and support—or even for their development. Often, in the quest for funding, past experience is ignored and future economic planning and market support are not part of the pre-funding development plan. Many worthy projects have foundered because of this. We would argue that, in prefunding planning, as much concern be devoted to practical economic and operational effectiveness as is devoted to the achievement of a technological feat.

Yet another practical issue, one which can determine the worth, and in some cases the success, of a funded project, is the broad applicability of the product of the project; i.e., its ease of use by a large number of libraries. Means must be found for insuring that functional specifications for new systems developments funded by national foundations on behalf of research libraries be so written as to be applicable to many libraries, whether they be members of RLG, WLN, or OCLC. To do less would seem to be a misapplication of funds. Parochial or proprietary attitudes seem highly inappropriate to projects developed through funding from national institutions of public trust. If broad applicability is assured at the outset, subsequent costly and time-consuming linkages will be obviated.

In regard to linkages, I would observe that, in our judgment, no one has yet demonstrated—indeed, even approached—the issue of the economic benefits of "linking the major bibliographic systems." The basic questions are still unanswered: How much data would be shared, and by whom? Who would pay for access? By what means can that access be achieved, and how will it be paid for? What huge additional capacity would RLG and WLN have to provide to permit the many OCLC members to access their systems in an interactive manner, and who would pay the cost of such additional capacity? How would the marginal benefit compare to the additional cost of maintaining redundant system capacity and flexibility?

We quite candidly believe that we, and others, have allowed ourselves to be so caught up in how we should link systems designed over a decade ago for a different reality that we have ignored many of the real needs and opportunities of both present and future: personal computers, local options, and electronic document delivery. These will reshape the roles and functions of research—and other—libraries.

We are convinced that appropriate linkage, integration, or even merger, of systems will take place, if at all, only when the economic realities have been squarely faced and when ARL libraries face their needs for resource sharing on a truly collective and collaborative basis—and when they recognize the enormous impact their actions will have on the resource sharing and automation decisions of other libraries, academic, public, and special.

OCLC does not claim to be clairvoyant or prescient, but we do see significant changes in what we, as a national bibliographic system, will do and what libraries will do, where it will be done and how. These changes will be wrought as a result of both our economic and our technological environments, in particular the growing number and the increasing capabilities of local online systems and personal computers and the development of electronic document storage and delivery. It is our opinion that, in the

coming years, scholarship and research will require constantly wider horizons which will be less constrained by, or dependent upon, historical relationships or physical location.

We also realize that, while economy of scale, which was and is a prime reason for OCLC's success, is still a valid reason for networking, the scale is changing and needs constant re-evaluation. It is inevitable that more functions and activities will be performed locally or in a shared mode with the central system, transparent to the user. We must find a way to balance local autonomy and flexibility against the needs for shared data and shared functions while, at the same time, we maintain overall efficiency and effectiveness.

In the meantime, we are keenly aware of the tough issues posed by Henriette Avram in her paper. They have not gone away. They are as trenchant, as compelling, and as exigent today as they were in 1981; they must be addressed, and we stand ready to join with ARL libraries, regardless of system dependencies or loyalties, with RLG, with UTLAS, or with any national network, in attacking them. Through our Research Libraries Advisory Committee, currently led by Roger Hanson, we will play, not just a supportive role, but a catalytic one.

APPENDIX B-4

Chapter 15

NETWORK-LEVEL DECISIONS: BASIS AND KEY ISSUES

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INTRODUCTION

At a recent meeting, it was strongly recommended that no presentation on networking begin without first defining the term "network." Jim Haas has already defined the term and I would agree with his statement that "For our use and in the context of this conference...a library network is a system of computer and communications capabilities established and organized to serve a purpose of value to libraries and their users."

I also agree with his point that librarians do participate in networking decisions and that the problem lies in the fact that librarians, libraries, and the networks themselves often make decisions or, more important, fail to make decisions for reasons of parochial interests.

The library community has made enormous strides during the last decade toward resource sharing through the technology. The accomplishments of the major bibliographic utilities, the Library of Congress (LC), the National Library of Medicine, the commercial data services, etc., are all evidence of this. Yet it is very apparent that there is a lack of coordination among the various components--planners, developers, users--and a lack of a clearly defined approach to future library network development. To put it bluntly, we are groping.

What then are the major obstacles standing in the way of further orderly development? It is evident that the technology is out there waiting for us. The bibliographic problems, albeit difficult, appear to be solvable. What

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Excerpted from Information Technology: Critical Choices for Library Decision-Makers, edited by Allen Kent and Thomas J. Galvin. New York: Marcel Dekker, Inc., 1982.

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then prevents development of a network that could satisfy the urgent demands of libraries today? It is my opinion that among the major obstacles is the unwillingness (1) to recognize the characteristics of the network configuration that exists today, and (2) to face up to certain complex networking problems. This unwillingness, often stemming from parochial interests, results in a lack of a sufficient basis for further decision making. If we could admit to what presently exists (this does not mean there is no possibility of change in the future), and if we could agree on key issues, planning could progress and near-term projections could be made with more confidence.

I would like to take advantage of this opportunity to state (1) what I see as presently existing and (2) what I see as some of the key issues that are important for future planning. In the framework of this presentation, there is no presumption of completeness. Needless to say, any such analysis should involve more than a single individual.

This, then, is the current scene as I perceive it.

Library of Congress

LC is the largest producer of bibliographic data, certainly in this country, and probably in the world, cataloging more items than any other single institution. LC operates the MARC distribution service whereby bibliographic and authority records are made available on magnetic tape to the national and international library communities. Libraries prefer LC records because they represent quality cataloging and cataloging done in the context of a "catalog" rather than a heterogenous collection of bibliographic records. In addition to the distribution of its own cataloging data, LC is responsible for the publication of the National Union Catalog (NUC) and its associated publication, the Register of Additional Locations. LC is presently engaged in automating the NUC, and that part of the NUC that is made up of non-LC records will also be in machine-readable form.

In the sense that LC provides products and services to libraries, it is a bibliographic utility. However, these products and services are derived principally as a by-product of its cataloging for its own requirements. LC does not now and will never host a system whereby a large number of

institutions are searching its files or inputting records into its system and receiving products from the records input. Likewise, LC will not provide the acquisition, serial check-in, circulation, etc., facilities for other libraries.

LC is, however, interested in resource sharing of bibliographic data for the benefit of its cataloging, and is presently involved in accepting bibliographic and name authority records from a limited number of institutions. These records are amalgamated into LC's catalog and are available through the MARC distribution service.

Bibliographic Utilities

The Online Computer Library Center (OCLC) is the major bibliographic utility in this country and, in fact, internationally. OCLC was the first online utility to be developed, has the largest membership and the largest data base, i.e., approximately twenty-eight hundred organizations and eight million records, respectively, at this time. Through arrangements between members and related organizations, an estimated thirty-five hundred more organizations also have access to the OCLC files. There is also a file of some 100 million locations associated with the bibliographic records.

OCLC is the only utility that is both nationwide and serves all types of libraries. The data base is a data resource, that is, an online file of records that is not organized in such a way that each record in the file is consistent with the remainder of the file. Although the LC name authority file is available for searching on OCLC, there is presently no attempt to create relationships within the online records. The actual function of cataloging is performed by members against their local catalogs using OCLC as a resource for the desired record and using the OCLC record modification facility to adjust the record to consistency with the local catalog. These records exist on the member's archive tape but are not in the online file. This means that the online file, taken as a whole, does not represent a single catalog, as does the National Union Catalog, nor does it contain the catalog of any individual institution.

Even though the online OCLC file is not a catalog, it fulfills the purpose of sharing bibliographic records and providing location information for interlibrary loan. Other functions, either operational or in the

developmental stage, include acquisition, serial check-in, and circulation. It is questionable, based on my own analysis and the observations of others, whether these functions should be performed by a nationwide utility with a large membership rather than in a more local or regional context or by a utility with a much more limited membership. There is at present, to the best of my knowledge, no well defined subject access project at OCLC. Thus, the reference and research facility leaves much to be desired.

The Research Library Group (RLG) uses the Research Library Information Network (RLIN) as its bibliographic utility. Although RLIN has users other than RLG, its principal orientation is support to research libraries. Since these research libraries are located all over the United States, RLIN can be categorized as nationwide but serving principally a single type of library. Like the Washington Library Network (WLN), RLIN was able to benefit from the experience of OCLC and include facilities which are not included in the OCLC system. RLIN's concentration is on a system to build an online catalog for individual member institutions as well as a union catalog for sharing resources. RLIN has expanded its acquisition system to make it available to all RLG members and plans to eventually provide serials check-in and circulation facilities. The searching facility, which is a powerful retrieval system, includes subject access and therefore satisfies the reference and research function. RLIN currently has twenty-five RLG members and approximately sixty-five non-RLG members. At the present time, the data base is smaller than that of OCLC and will likely remain so because of the difference in the size of the membership of the two utilities.

WLN has, from the beginning of its development, offered its services as a regional system. There has never been any attempt at becoming nationwide. Thus, WLN is a system offering services regionally to all types of libraries. A system is partially implemented and is presently being expanded to provide catalog capabilities through the use of its authority control system. WLN, like RLIN, has built in the capability to permit institutions to catalog according to local practices. However, the membership has agreed to follow one set of rules and practices for current cataloging and, therefore, the WLN bibliographic file does have the attributes of a union catalog.

WLN has an acquisition system and a pilot project is underway for a decentralized circulation system. At the present time, there is no serials check-in system, but, like RLIN, there is a well developed retrieval system which includes subject access. WLN has seventy-three members and a data base that is also smaller than that of OCLC.

WLN has achieved what few other bibliographic systems have, that is, the system software is relatively easily transferable. The system has been successfully installed at the National Library of Australia and the University of Illinois at Urbana, and plans are underway to install it at the National Library of South Africa and the University of Missouri. To further exploit this transfer capability, WLN has entered into a licensing agreement with a vendor to market a turnkey version of the system. The vendor has packaged the system (software and hardware) to meet the requirements for a single library, a consortium, or a network, and thus has added to the system's flexibility.

Cooperative Projects

There is no sharing of resources among the three systems, OCLC, RLIN, and WLN. The only data base common to all is the LC MARC file. This means that the user of one system shares resources with other members of that system but has no access to data input to any other system. The result is duplication of cataloging, conversion, and services. Recently, there has been some activity underway to provide a linking facility in order to more readily share resources. The Linked Systems Project is an effort undertaken by LC, RLIN, and WLN and funded by the Council on Library Resources, with the intention of building a communications link so that the user of one system can search the data base of another system and transfer records from that system to his own.

The Name Authority File Service is a first implementation of the Linked System Project. The participants in building the file will be LC and selected research libraries. While the name authority data base will reside in RLIN and LC, through the Linked System Project other systems will also be able to participate in an online environment.

CONSER, the first attempt at cooperatively building an online national data base, was implemented as a system whereby all participants

input into one utility, namely, OCLC. The present status of CONSER is somewhat confusing because several of the CONSER participants have now joined RLG and there is no way for a user of one utility to either search the file of, or have any of its records transferred online to another utility. Thus, serial records are now being input by some CONSER participants into OCLC and by some CONSER participants into RLIN, potentially resulting in duplicate cataloging.

Service Centers

There are some twenty-two service centers, such as NELINET and SOLINET, providing various services to their members, within either a state or a region. In the past, these centers served primarily as middlemen between libraries and bibliographic utilities, providing contracting and training services. Recently, several of the service centers have procured or are planning to procure computer facilities of their own and have begun to take on the characteristics of WLN, that is, a regional system.

Local Systems

In addition, activity is also taking place at individual libraries across the country to develop local automation support. For the universities, this is a natural extension of services provided by computer centers which these universities maintain. The support under development varies from circulation to computerized catalogs.

Summary of the Current Scene

The scene described above can be summarized as follows:

- 1) LC as the major producer of bibliographic records through its MARC Distribution Service;
- 2) three bibliographic utilities,
 - a) OCLC as the largest data resource and serving all types of libraries nationwide,
 - b) RLIN as a utility specializing in services to a type of library, and
 - c) WLN as a regional system for all types of libraries;
- 3) several projects, either operational or in the planning stage, designed to cooperatively build a data base and/or share records through a communications facility;
- 4) service centers, predominantly regional in their coverage, some

planning or implementing computer-based systems of their own to serve their members; and

5) locally operated automated systems at individual libraries.

Given the above, it becomes obvious that the three utilities are not alike, and perhaps we ought to stop discussing them as though they were. RLIN and WLN are similar in that they serve a limited membership, one limited as to type of library and the other as to geographic area. In both cases, the limited membership appears to permit more complete library service. OCLC, on the other hand, is a major data resource, possibly taking on the aspect of a central node of a nationwide network.⁽¹⁾ It is increasingly obvious that there is an impetus toward decentralization for the more regional requirements, in conjunction with a centralized data resource. Such distributed data processing has exciting possibilities. As reported in the Library Journal⁽²⁾, WLN's agreement with OCLC to discuss and perhaps to negotiate a cooperative alliance between the two organizations is increasing evidence of this trend. Since the WLN system software is transferable, it would be possible to establish regional systems using the same software. Significant resources could be saved since less design and development would be necessary. One can expand this logic and assume levels of specificity, with other computer-based systems linked to the regional system providing more specific functions, such as a union catalog for a few members within the larger regional system.

Up to now, I have concentrated on the current network configuration. The present should serve as the basis for future development. It should be remembered, however, that while there are approximately 6500 organizations with access to a bibliographic utility, there are many more libraries that do not have such access, and these should also be considered in our future planning.

KEY ISSUES

The rest of my presentation will be concerned with some of the key issues that I see as requiring attention.

Central Node

A central facility as a data resource, as implied above, may be the most efficient device. However, the designation of such a center

raises the question as to whether there is any danger in the monopoly that would result. A monopoly can mean higher prices, non-responsiveness, and a lack of innovation.

A central node would deal with regional nodes in one of at least two ways (1) maintain control of the regional nodes, or (2) let the regional systems remain independent. In the first instance, we expand the monopoly, and, in the second instance, we would need to review today's pricing structure to guarantee that the central node would be financially viable, since the type and the frequency of transactions on the central node would be drastically altered.

The character of regional development would be shaped by the decision on this issue. This issue should thus be of nationwide interest and should be taken into account as arrangements and contracts are negotiated over the next few years. Individual libraries will certainly have to live with the consequences of these developments over many years and the community should be prepared to evaluate the options so that it will have a voice in the decisions made. With the establishment of governing boards and other arrangements for influencing or participating in the decision-making process within the networking organizations, individual libraries have a chance to be heard on proposed future changes.

System-to-System Links

Regardless of how the future network is configured, system-to-system links will be needed to implement the exchange of data and/or services between any two or more systems. Such a system-to-system link should become a standard and would be the fundamental building block of this decade, as MARC was to the last decade. Like MARC, this linking facility would not dictate how any one organization designs its system. We already have several situations where development will be held back if such a link is not available: (1) regional computer-based systems desiring to link to OCLC; (2) RLG members needing to use the RLIN system to input non-duplicate serial records into the CONSER file maintained at OCLC; and (3) LC and RLIN implementing the technical component of the Name Authority File Service. I am sure that, given the linking standard, a host of other more effective and efficient ways to share resources will be

proposed. If the standard link is used, all kinds of national and international exchanges eventually become possible.

The general requirements for a facility to communicate between systems(3) and for an application level protocol for library data exchange(4) were developed by technicians involved in library automation, published, and made widely available some five years ago. Why is it that such a link still does not exist? Could it be that concern for parochial interests has prevented this development? Such a system-to-system link would adhere to the International Organization for Standardization's Basic Reference Model for Open Systems Interconnection(5) and would provide the basic component from which an innovative community could shape a network as political and financial issues are resolved.

The standard system-to-system link is at long last in the initial stages of development through the activities of ANSI Z39 and the Council's Linked Systems Project. What is needed is a conscious decision by network administrators and their planners, developers, and user groups to support this activity as a community.

Compensation

In most circles I move in, we shy away from facing the need to study how to compensate creators and distributors of bibliographic data in a network environment. Most of the discussions to date have come under the general heading of ownership and distribution of bibliographic data. This was certainly the case in the discussions of the Network Advisory Committee (6, 7, 8). We tried to answer such questions as:

- Should the OCLC decision on third-party use become a model for national policy?
- Should the creator of the records be compensated?
- Who owns the records I enhance?
- Once bibliographic records from a variety of contributed sources enter a data base, who owns the records? Who owns the data base?

These discussions have indicated to me that in concentrating on "ownership" we are bypassing what we all know—that the concept of ownership implies the more basic issue of compensation.

During the past year, a national agency outside the United States has expressed unwillingness to have its data distributed by LC to any U.S. organization that provides products and services to other institutions, without the organization first negotiating a licensing agreement between itself and the national agency. Likewise, another national agency has recently refused the right of a utility in another country to make the national agency's data available online. In both cases, the national agencies do not want to lose customers for their own services. Similarly, in the United States, if a regional system were linked to a utility and a record selected from the utility data base by a user of the regional system were incorporated into the regional system, from that point on the regional system, instead of the utility, would derive income from the use of that record by its members.

While the library community should be encouraging the sharing of information, the future system must permit satisfactory compensation for creators, distributors, etc., or these agencies most probably will fail, and we will all suffer the result.

We might ask ourselves if these economic issues are not the real basis for the lack of progress toward system linking in the United States, and if the time has not now arrived to stop avoiding the issues, recognize the economic necessity for compensation, and resolve to find solutions.

SUMMARY

There are many other issues that need exploration but, within the time allowed, I have tried to address a sample of the types of network decisions that must be made. Will we have dependence or independence for local and regional systems, standard links to facilitate open system interconnection, and adequate compensation schemes to support needed facilities for the efficient flow of data? Will we all participate in making these decisions? If we are to get out of the status quo, we must both know what is going on, what choices are being considered, and what the ramifications of the choices are. We must overcome the practice of making decisions or, worse still, not making any decision because of parochial interests.

NOTES AND REFERENCES

1. The term "central" as used here does not preclude the development of such groups as the Research Library Group.
2. Savage, Noelle. "WLN and OCLC Promise to Work on Alliance." Library Journal, vol. 106, no. 16, September 15, 1981, p. 1669.
3. Network Technical Architecture Group. Message Delivery System for the National Library and Information Service Network, General Requirements. Edited by David C. Hartmann. Washington, Library of Congress, Network Development Office, 1978. (Network Planning Paper, no. 4)
4. NCLIS/NBS Task Force on Computer Network Protocol. A Computer Network Protocol for Library and Information Science Applications. Washington, D.C., National Commission on Libraries and Information Science, December 1977.
5. International Organization for Standardization. TC97/SC16, Open Systems Interconnection. Data Processing-Open Systems Interconnection-Basic Reference Manual. Draft Proposal ISO/DP 7498, December 3, 1980.
6. Webster, Duane E. and Lenore S. Maruyama. Ownership and Distribution of Bibliographic Data: Highlights of a Meeting Held by the Library of Congress Network Advisory Committee, March 4-5, 1980. Washington, D.C., Library of Congress, December 1980. Working Document.
7. A Nationwide Network: Development, Governance, Support; Ownership and Distribution of Bibliographic Data. Summary of an Open Meeting, June 28, 1981. Cosponsored by the Library of Congress Network Advisory Committee and ALA Association of Specialized and Cooperative Library Agencies, Multiple Library Cooperation Section, September 4, 1981. Draft.
8. "The Care and Feeding of Bibliographic Data: Who Owns These Records, Who Controls Them, and How Should They Be Distributed?" Bulletin of the American Society for Information Science, vol. 7, no. 6, August 1981, p. 24-27. (Edited version of the document cited above by Duane E. Webster and Lenore S. Maruyama).

APPENDIX B-5

INITIATIVES TOWARD A
BIBLIOGRAPHIC COMMUNICATIONS NETWORK
FOR CANADA

by

Cynthia J. Durance

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FOREWORD

Since the publication of the first issue of the series, Canadian Network Papers,¹ the National Library of Canada, with the approval of the federal government and the active cooperation of many Canadian librarians and communications experts, has taken new strides toward the development of a nation-wide bibliographic network. They are based on the open systems interconnection concepts laid out in The Context of Interconnection for a Nation-wide Bibliographic Network.

This second issue of this series is based on the presentation made by Cynthia J. Durance, Director, Office for Network Development, to the joint meeting of two committees of the National Library Advisory Board, namely the Bibliographic and Communications Network Committee and the Resource Network Committee, in May 1981. The third paper in the series, based on a complementary report by Hope E.A. Clement, Associate National Librarian, will address the wide spectrum of problems related to the development of a resource-sharing network in Canada.

With respect to the development of a Canadian library network, first priority has been given to bibliographic communications network proposals. The report entitled The Future of the National Library of Canada recommended that the Canadian library network be achieved by voluntary cooperation among institutions enjoying a large measure of autonomy, and that it be neither monolithic nor centrally controlled but managed cooperatively through contractual arrangements between two or more institutions/consortia for the sharing or exchanging of information or services. This highly pragmatic, flexible approach is the only valid one in a country where existing and future bibliographic services of varying degrees of sophistication will continue under various jurisdictions as well as in the private sector.

In announcing the federal government's decision to make funds available to the National Library to coordinate the participation of institutions in testing the application of new technology to library and information services, the Honourable Francis Fox, Minister of Communications, said:

"Information available in libraries across Canada is a valuable resource. Improved ways must be found to share these resources among all Canadians. By funding this experiment at this time, the National Library will continue its coordinating role in making advanced technology work for the library community."²

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1. Edwin J. Buchinski and Mazharul Islam, The Context of Interconnection for a Nation-wide Bibliographic Network, Canadian Network Papers, no. 1 (Ottawa: National Library of Canada, 1980).
 2. "National Library of Canada to Test New Systems for Exchange of Bibliographic Information among Libraries" (Canada Department of Communications press release, June 11, 1981).

EXECUTIVE SUMMARY

The purpose of this paper is to provide an update on the current status of library systems development in Canada and to describe the new initiatives which the National Library is undertaking cooperatively with other institutions to facilitate the development of a nation-wide decentralized bibliographic communications network.

This paper begins by briefly reviewing highlights of library automation in Canada over the last two decades in order to provide a perspective on current network initiatives and on the leadership role of the National Library in this regard. Some aspects of the National Library's work include facilitating the work of task groups, study teams, and committees. In the late 1970s the National Librarian, in conducting a review of the role of the National Library, became convinced of the need to reassess prior network planning in the light of the rapid technological advances then occurring. This resulted in a significant change from the concept of a centralized network to that of a decentralized one, a change enthusiastically endorsed by the Canadian library community. The characteristics of closed and open network models are therefore discussed in this paper and some of their advantages and disadvantages for the Canadian context are noted. The remainder of the document describes initial steps toward the implementation of the Open Systems Interconnection (OSI) model, which poses a considerable challenge to the National Library and to the Canadian library community.

To date, three major initiatives are under way. First, in March 1981, the National Library Advisory Board created two new committees to advise it on policies for network development. They are the Bibliographic and Communications Network Committee and the Resource Network Committee. Another committee, the Committee on Bibliographical Services for Canada, was renamed the Committee on Bibliography and Information Services for the Social Sciences and Humanities, to reflect its broader mandate.

Second, the National Librarian has created the Task Group on Computer/Communications Protocols for Bibliographic Data Interchange. It is composed of experts drawn from library, information, and publishing industry systems, university computer faculties, telecommunications carriers, and federal government telecommunications research and standards development staff. Its terms of reference include the recommendation of computer-to-computer protocols which are application specific for bibliographic data interchange, essential for on-line interaction between host computers.

The third initiative will significantly influence the work of the above-mentioned committees and the task group. Beginning in Summer 1982, and continuing for one year, the National Library, in conjunction with five other institutions, will conduct a bibliographic and communication network pilot project to test the utility of new telecommunications technology for bibliographic data interchange. The majority of the activities will be undertaken through the facilities of the iNet Gateway trial being mounted by the Computer Communications Group (CCG) of the TransCanada Telephone System (TCTS). These facilities will test value-added network services simultaneously for several industrial and service applications. The National Library will coordinate the group of six library participants called the Bibliographic Interest Group. This group will conduct pilot projects to develop and test computer interfaces to the network including network directories; the derivation of bibliog-

raphic data from diverse data bases; electronic messaging for interlibrary loan; the application of videotex and videodisc to library applications; and prototype automatic data transfer between disparate bibliographic systems. The evaluation of the pilot project will provide important data for future technical network operations and development. It will also highlight some of the political, legal, and managerial issues whose resolution by the Canadian library community will ultimately decide the success of a network in which participation is voluntary.

1. INTRODUCTION

Resource sharing and the provision of information to the user are the aims of nation-wide library network development. The bibliographic communications aspect of a nation-wide network is the essential support mechanism for effective resource sharing: it facilitates the essential accurate and timely identification and location of information materials in the network. For this reason, the bibliographic communications network is being developed urgently. Its development is being based on the many building blocks which have already been put in place through the efforts of many types of libraries and information centres – public, special, school, college and university – across the country and internationally. A brief overview of some of these building blocks will place current developments in perspective.

2. LIBRARY SYSTEMS DEVELOPMENT IN CANADA: HIGHLIGHTS

Automation was first applied to library functions in Canada in the mid-1960s. Cataloguing of library materials was usually the first function to be automated, followed by circulation and acquisitions. These early automation efforts were institution specific, in batch mode, and used non-standard formats and content designations.

Since the late 1960s, major developments toward library automation have also been undertaken at the national and international levels. The development of the Library of Congress's MARC format was a milestone in national and international library systems development. The National Library used it to develop the CAN/MARC formats, including most recently a format for the exchange of machine-readable name and subject authority records. These machine-readable communications formats have facilitated the creation of MARC tapes, their exchange among national bibliographic agencies, and the subsequent initiation in Canada of the National Library's MARC Records Distribution Service. At the same time, the Canada Institute for Scientific and Technical Information (CISTI) has developed CAN/SDI and CAN/OLE, information retrieval services which are available to library and information services nation-wide, and the University of Toronto has developed the first on-line cataloguing system in Canada.

There were other significant developments of automated bibliographic systems across the country during these two decades. TESA I at the University of Saskatchewan was the first system capable of accepting and loading MARC tapes. Guelph University's CODOC system for government documents is in wide use in Canadian libraries. The private sector development and implementation of turnkey minicomputer systems for automated circulation functions, notably GEAC and ULISYS, enabled more libraries to automate these essential functions. In the late 1970s, the National Library and CISTI jointly developed the prototype DOBIS on-line integrated system into an operational system for the use of federal government libraries. An early version of DOBIS was also replicated by Centennial College in Toronto for use by Ontario community colleges. As well, the ongoing development of the University of Toronto Library Automation System (UTLAS) from a cataloguing system to a multi-function on-line system has made it the nation's largest bibliographic utility.

The last decade has seen the creation of cooperative library consortia. At least two library consortia have utilized the services of UTLAS: the consortium of Ontario

and Quebec libraries (UNICAT/TELECAT), which was dissolved in 1980, and the British Columbia Union Catalogue (BCUC) project. The regional consortium of the Maritime provinces during its existence used the services of Blackwell, North America. Other emerging consortia in Alberta, Saskatchewan, and Quebec are planning to automate either by means of the services of bibliographic utilities or through replications of existing software.

In addition, the work of international organizations has influenced Canadian library automation. The International Federation of Library Associations and Institutions (IFLA), under the program of Universal Bibliographic Control (UBC), has participated in important bibliographic and machine-readable format standards activities. Similarly, the International Organization for Standardization (ISO) has adopted standard numbering schemes for books and serials - the ISBN and the ISSN - as well as other important automation standards including the ISO 2709 standard for machine-readable tape exchange.

UNESCO has also played an important role through the development of the International Serials Data System (ISDS) for the world-wide registration of serial publications. More recently, it has created the General Information Program (PGI), which is dedicated to the support of world-wide availability of information.

The above summary of library automation developments is by no means exhaustive, but it serves to indicate the variety and scope of library automation activities in Canada as well as those outside Canada which influence Canadian developments. If anything, library network development in this country has been hampered by a surfeit, rather than a paucity, of systems development.

3. ROLE OF THE NATIONAL LIBRARY IN NETWORK DEVELOPMENT

The National Library has played an important coordinating role during this decade of rapidly developing technology. Following the recommendations of the National Conference on Cataloguing Standards in 1970, three task groups were appointed to develop standards for the planning and implementation of an automated Canadian library network. The Canadian Task Group on Cataloguing Standards (1970-1972) laid the basis for the content and format revision of the national bibliography, *Canadiana*, and for a Canadian position on standards development internationally.³ Many cooperative bibliographic projects have also been initiated by the National Library as a result of that report, such as Cataloguing in Publication, the cooperative Université Laval/National Library subject headings project,⁴ the National Library/Library of Congress corporate names agreement, and the CONSER project. Another group, the MARC Task Group (1970-1972), developed the bilingual Canadian MARC format.⁵ Both of these task groups were instrumental in establishing the basis for the exchange of machine-readable data among libraries in

3. Cataloguing Standards: The Report of the Canadian Task Group on Cataloguing Standards (Ottawa: Information Canada, 1972).

4. Répertoire de vedettes-matière: Supplément (Ottawa: National Library of Canada; Quebec City: Bibliothèque de l'Université Laval, 1978).

5. Canadian MARC: A Report of the Activities of the MARC Task Group Resulting in a Recommended Canadian MARC Format for Monographs and a Canadian MARC Format for Serials (Ottawa: Information Canada, 1972).

Canada and abroad. The third task group, the Canadian Union Catalogue Task Group, was created in 1972. Its mandate was to produce a blueprint for future interlending and union catalogue activities in a library network context. A sub-group conducted significant studies on Union List of Serials activities⁶ and a study was completed of Canadian interlending patterns.⁷ Its final report⁸ provided important input and impetus to network planning and to the comprehensive review of the role of the National Library which was undertaken during 1976 and 1977.

In addition to these task groups, the National Library Networks Office was created in 1974 to carry out planning studies for the development of a nation-wide library network. It conducted the Canadian Computerized Bibliographic Centre Study (CCBCS), consisting of seven sub-studies which described the state of the art of library development and led to a final report, Towards More Effective Nation-wide Library and Information Networking in Canada.⁹

The comprehensive review of the National Library mentioned above reassessed the role, objectives, and services of the National Library. This process also included the receipt of many briefs from associations, institutions, and individuals, and re-evaluation of existing programs by National Library staff. The review culminated in the publication in 1979 of the National Librarian's report to the Secretary of State, entitled The Future of the National Library of Canada. Its important projection for the development of a decentralized bibliographic network has gained widespread support from the Canadian library community.

In the late 1970s, the National Library realized that technological developments were occurring so quickly that even some advanced concepts of the 1970s would soon be obsolete, and that prior thinking on library networks would have to be reassessed in the light of emerging technology. In order to assist in the required reassessment of network planning, the National Librarian created the National Library Network Project. This project has recently been placed on a more permanent basis and is now called the Office for Network Development.

Until 1978, technology dictated a "closed" national library network with a central union catalogue file to which all other systems would be connected. The master-servant relationship implied in such a network had several disadvantages. On the one hand, it was not politically acceptable – the size and geographical distribution of the Canadian library community and the regionalization of Canada both favor a decentralized approach over a centralized one. On the other hand, a centralized approach would also place an onerous burden on the National Library by requiring maintenance of the central union catalogue file and access to it. Not until the late 1970s did new technological advances present an alternative approach which permitted the significant change in bibliographic network planning from a centralized to a decentralized model.

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6. Canadian Union Catalogue Task Group, Sub-group on Union List of Serials, Report (Ottawa: National Library of Canada, 1975).
 7. Basil Stuart-Stubbs et al., Interlibrary Loan in Canada: A Report of a Survey (Ottawa: National Library of Canada, 1976).
 8. Canadian Union Catalogue Task Group, Final Report to the National Librarian (Ottawa: National Library of Canada, 1976).
 9. R.M. Duchesne, D.A. Guenter, and M. Islam, Towards More Effective Nationwide Library and Information Networking in Canada (Ottawa: National Library of Canada, 1980).

4. CHARACTERISTICS OF CLOSED AND OPEN NETWORKS

A new approach was manifested in the internationally accepted Open Systems Interconnection (OSI) model. The open network facilitated by this model differs in several important ways from existing closed network configurations. Closed networks can be small or large (i.e., they can involve from 1 to 1000 terminals, or even micro- or mini-computers connected to the host) and can serve clients locally, province-wide, or nation-wide. But they also involved master(host)-servant(terminal) relationships, centralized data bases, requirements for compatible equipment, and network or system specific commands and protocols. Closed networks are star networks and currently include systems such as DOBIS, UTLAS, OCLC, and WLN. To use more than one of these systems, a library must maintain several different terminals or use different access strategies, or both. For example, in order to provide services to Canadian libraries, the National Library requires access to DOBIS, UTLAS, OCLC, CAN/OLE, and other data bases. Accessing these various data bases requires several different access strategies, and in some cases different terminals. This is very inefficient, time consuming, and confusing for NLC clients and staff.

In contrast to a closed network, an open network model configures the interconnection of different host computers and simplified access to many different data bases. There is no "master" data base; that is, there need not be one central data base. The Canadian library network data base becomes the sum total of all data bases in the network. Eventually there will be a similar, if not a common, command language for accessing the data bases within the network, including library processing and information retrieval, as well as full text and publishing data bases. In addition, each system or closed network can be autonomous in its development as long as it can translate its internal configuration into a network standard configuration when access beyond the system or closed network is needed. The network thus becomes an "add-on" to the local/regional system to be accessed as required. The cost of maintaining the conversion to the network standard will be borne locally. The open network is really a network of closed networks, be they based on macro-, mini-, or micro-computer systems. Given all of these characteristics, it is little wonder that Canadian librarians have embraced this concept enthusiastically.

The National Library is now faced with the challenge of working with Canadian libraries to implement this concept of network development. OSI has not been fully implemented anywhere; indeed, it is an International Organization for Standardization (ISO) model, and standards for parts of it are still being drafted. It is a complicated model which requires cooperative implementation by hardware and software manufacturers, telecommunications common carriers, and host systems. It is not yet known with certainty which parts of the OSI model each of these groups will need to implement. The library functions which are most amenable to OSI and most amenable to dedicated connections must also still be determined. Moreover, the maximum number of data bases which can be cost-effectively accessed in order to satisfy a query (for example, an interlibrary loan location query) is not known at this time. The use of various types of new technology for providing library services bears further investigation. Lastly, the political, jurisdictional, legal, and management questions involved in implementing a new set of concepts and technology must be addressed as they emerge.

5. STEPS TOWARD IMPLEMENTATION OF A DECENTRALIZED LIBRARY NETWORK

To date, three major initiatives have been undertaken by the National Library to meet these challenges. First, in March 1981, the National Library Advisory Board created two new committees to advise it on various aspects of network development. Each committee will submit recommendations aimed at promoting the development of interdependent and interrelated networks for bibliographic communications and resource sharing. These committees significantly increase the participation of Canadian experts in the development of network-related policies, which can only be successfully implemented with the active contribution of many individuals, institutions, consortia, and governments. The Bibliographic and Communications Network Committee is studying policy issues and problems posed by the creation, development, management, and financing of a bibliographic communications network in the new electronic age. Complementing its work, the Resource Network Committee is examining the most cost-effective means of ensuring the broadest possible utilization of the services and collections of Canadian libraries. It will submit recommendations regarding research collections, interlibrary lending, document delivery, legal deposit, and conservation. As well, the National Library Advisory Board's previously existing committee, the Committee on Bibliographical Services for Canada, has been renamed the Committee on Bibliography and Information Services for the Social Sciences and Humanities. Its mandate has been broadened to ensure that Canadian social sciences and humanities information and documentation services are supported and developed. The areas dealt with by these three committees are complementary and close liaison is maintained among them.

Second, in December 1980, the National Librarian created the Task Group on Computer/Communications Protocols for Bibliographic Data Interchange. It is composed of experts drawn from library, information, and publishing industry systems, university computer faculties, telecommunications carriers, and federal government telecommunications research and standards development staff. The creation of a decentralized nation-wide bibliographic network involves many complex tasks. One of the technical tasks is the development of standardized procedures or protocols that will enable emerging and existing on-line library systems, utilizing different computer equipment and different computer programs, to interchange bibliographic data. The need for such standard messages and procedures has already been described in greater detail in The Context of Interconnection for a Nation-wide Bibliographic Network. The task group is charged with defining those computer-to-computer protocols which are application specific for bibliographic data interchange. This work is being done within the framework of the Open Systems Interconnection (OSI) model. In addition, the task group is providing liaison with library and information systems across Canada on protocol development and input to relevant ISO committees developing international protocols. The task group is meeting on a regular basis; its report is anticipated in 1983.

The third initiative will significantly influence the work of the above-mentioned committees and the task group. In 1982, in conjunction with five other institutions, the National Library will conduct a bibliographic communications network pilot project to test the utility of new telecommunications technology for bibliographic data interchange. In broad terms, this will enable testing of value-added network

services provided by the telecommunications common carriers. The provision of some of these value-added services, either by individual host systems or by telecommunications networks, is a prerequisite for the implementation of the application level protocols being developed by the Task Group on Computer/Communications Protocols for Bibliographic Data Interchange.

More specifically, the majority of the activities of the bibliographic communications network pilot project will be undertaken using the facilities of the iNet Gateway trial being mounted by the Computer Communications Group (CCG) of the Trans-Canada Telephone System (TCTS). This trial will begin in the summer of 1982 and will last for a period of one year.

The iNet Gateway trial will include seven groups, each sharing a common interest, such as banking, petroleum, and travel. With alphanumeric, alphageometric, or Displayphone terminals, each participant of each common interest group will be able to access the Trial Network Access Node (TNAN) via Datapac or Direct Distance Dial lines. The Network Access Node will provide an interface between data bases including authentication and automatic access to data bases, application and personal directory facilities, network maintenance facilities, such as notification of systems availability and time-out capability, and network user administration including transaction statistics, etc. However, once connected to a particular data base, the exact search procedures of that data base must be followed until such time as the common command language being investigated by the Task Group on Computer/Communications Protocols for Bibliographic Data Interchange can be implemented.

Data bases which will be available for access will include those provided by each participant to other members of their common interest group, or to other interest groups, and data bases of commercial information providers, including videotex (Telidon) data bases.

To facilitate the trial the CCG is providing to each participant telecommunications lines, alphageometric and Displayphone terminals, the Trial Network Access Node and the electronic mail service without charge for one year. While CCG is the manager of the overall trial, each common interest group has a coordinator responsible for coordination and project management of that group's activities. There is no obligation to continue participation either on the part of the CCG or the institutions after the trial period is over.

The National Library's Office for Network Development began working with CCG in 1980 to assess the appropriateness of the iNet Gateway trial for testing and evaluation of new telecommunications services in the area of bibliographic data interchange. The National Library subsequently sought and received Cabinet approval and funding to take part in the trial as coordinator of the Bibliographic Interest Group, and as one of the participants in the group. The funding received also enabled the Canada Institute for Scientific and Technical Information (CISTI) to participate in the trial.

The Bibliographic Interest Group was formed after the National Library and the CCG jointly selected five institutions to participate in the trial. The following criteria were included in selecting participants. Each participant had to reside

within the geographic area of the trial (Montreal, Ottawa, Toronto) and have a stand-alone, operational, and stable on-line system. The group as a whole needed to remain small in order to maximize coordinated research and development, but at the same time, in order to test diverse systems interfaces, it needed to possess hardware systems as varied as possible. The diversity of types of data bases, in terms of content, language of content (English and French), and function (information retrieval, cataloguing, circulation), was also a consideration. Each participant needed to be in a position to devote the necessary human and financial resources to participate in the trial and to agree to carry out necessary data collection and evaluation. In addition, preference was given to institutions that had expressed an urgent requirement for access to large library and information data bases.

In addition to the National Library and the Canada Institute for Scientific and Technical Information (CISTI), the institutions which agreed to participate are Carleton University, Université du Québec, University of Guelph, and the University of Waterloo.

The Bibliographic Interest Group has agreed jointly to undertake several projects. The essential projects for each participant are the development and testing of network interfaces and directories which will enable participating systems to interconnect and access each other's host systems and data bases, as well as connecting to other information provider supplied data bases. Other projects will assess the utility of data derived by searching multiple data bases for catalogue support, and the potential of electronic mail for increased effectiveness of interlibrary lending. Some videotex data bases will be created in order to assess the potential of videotex technology for bibliographic applications. Some participants will also develop and test prototype software for a standardized on-line bibliographic file transfer application so that bibliographic data eventually can be automatically transferred from one data base to another. Finally, the National Library will be assessing the use of videodisc for library applications.

As coordinator, the National Library will act as liaison between the participants and the CCG; assist with the establishment of common procedures for the conduct of projects; coordinate data collection methods and procedures among participants; analyse the data collected; and integrate the results into periodic and final reports.

Information about plans and work in progress will be made available through appropriate channels during the trial period. If the trial is successful and the development of an open network utilizing value-added network services proves to be feasible, operational services with an expanded participant group can then proceed in concert with the further development required to achieve full service capability.

The pilot project and research on protocols, videotex, and videodisc will undoubtedly highlight certain aspects of the political and managerial issues involved in the operation of an open network, as well as the implications of the technology for Canadian library and information services.

One way of visualizing the decentralized nation-wide network is as a voluntary club with criteria for membership, "house rules," and a management mechanism to monitor the operation and its facilities. The challenge to the recently formed National Library Advisory Board committees, particularly the Bibliographic and Communications Network Committee, will be to recommend how to bring such a club into being and how and by whom its facilities should be managed.

The National Library is convinced that a nation-wide decentralized network will inevitably develop in the 1980s. However, whether it develops in a coordinated, efficient, and effective manner will ultimately depend on the national advisory committees and the Canadian library community they represent. The responsible manner in which they resolve political, legal, and managerial issues will decide the success or failure of the network. To cope with these new problems and new opportunities, it appears vital not to let the past quarrel with the present; for if this should happen, the future could well be lost.

APPENDIX C

EXECUTIVE DIRECTOR'S REPORT

ARL is about to embark upon an ambitious five-year plan that will significantly strengthen its ability and that of its member libraries to play an effective role in the world of scholarship and learning. This plan is the means by which we will pool our energies in pursuit of our common goal, which is "to strengthen and extend the capacities of member libraries to provide access to recorded knowledge and to foster an environment where learning flourishes, to make scholarly communication more effective, and to influence policies affecting the flow of information."

The process of preparing the plan has been instructive for everyone involved. For the staff, the process itself has already begun to clarify working priorities. Adoption and implementation will provide the focus needed for evaluation of current and proposed activities and for action.

ARL Activities

During the past six months, as the Five-Year Plan was being developed, ongoing activities have been maintained and a few new projects have been begun. New initiatives have been carefully evaluated and those that we have undertaken are related to the mission and objectives of ARL as outlined in the Five-Year Plan, while allowing us to take advantage of opportunities for action and funding as these have arisen.

Microform Project

A clearinghouse for information on the cataloging of microform sets has now been established, as reported in the March 3, 1983 issue of the ARL Newsletter. The preservation microfilming program was added to this project last autumn, funded by a grant of \$63,739 from the National Endowment for the Humanities. This program employs similar methodologies as the bibliographic control program: a detailed investigation of preservation microfilming needs, the formulation of a plan for coordinating existing activities and stimulating new ones, and implementation of that plan. The ARL Preservation Committee, augmented by three experts, and the Microform Project Advisory Committee will serve as advisors. ARL is also seeking funds to extend the bibliographic control component of the microform project through the fall of 1984 in order to ensure that coordinated cataloging work will continue.

Collection Development

The ARL Task Force on Collection Development has completed its study of the RLG collections conspectus as a possible tool for building an inventory of research collections in North America. Joseph Treyz, Task Force Chairman, presented a proposal for expanding the conspectus database to the ARL Board in February. The Board has approved proceeding with this proposal, and the RLG Board has also approved the cooperative effort. Mr. Treyz will report more fully on the Task Force proposal during the Business Session at this meeting. An ARL-OMS proposal to accomplish Phase I of the program is being considered by the Council on Library Resources.

Performance Measures Manual

Following the completion of a test project of several performance measures that examine factors that may interfere with the availability of library materials or impede access to them, the Committee on ARL Statistics recommended that ARL contract with Paul Kantor, of Tantalus, Inc., to produce a manual to facilitate the use of three of these measures in member libraries. The measures are: availability of materials, accessibility of materials, and delay analysis. The Committee will be reporting to you more fully on their test in the near future. The Board approved the recommendations and the manual is now in production. One copy will be sent to each ARL member library, and additional copies will be available for sale.

CONSER A & I Project

The ARL/NFAIS project to enrich the CONSER database with information about coverage by abstracting and indexing services has now received conditional funding from the Council on Library Resources, the H.W. Wilson Foundation, and the National Endowment for the Humanities. However, funding already committed is not sufficient to complete the project as originally envisioned and we are seeking the remainder of the necessary funds from private-sector organizations. In the meantime, a pared-down proposal has been prepared that would enable work to commence by September 1, if CLR, Wilson, and NEH approve.

Institute for Library Educators

Acting on a suggestion made at the October 1982 ARL Meeting by Patricia Battin, Duane Webster and the ARL Committee on Library Education are developing a proposal for a series of three-week institutes on contemporary problems and prospects in research libraries. If funding can be secured by this fall, the Committee has recommended that the first institute be held during the summer of 1984. The OMS would design and run the institutes with ARL directors and other appropriate experts as instructors. Each institute would include a week-long workshop, a practicum, and the preparation of a report. Participants could be nominated by library school deans or self-nominated. The Committee would serve as advisors to this project.

Recruitment Brochure

The recruitment brochure for research librarianship is now in production. Copies will be sent to all ARL members later this spring, and we urge you to use these brochures when you talk with prospective recruits to the profession. The brochure will be widely distributed to college and university placement counselors, library schools, etc.

Office of Management Studies

In addition to the Institute for Library Educators, Duane Webster has been working on a proposal to NEH to extend the preservation planning study to ten additional ARL libraries, and is planning a Management Skills Institute for ARL directors to be held immediately prior to the ARL October 1983 meeting in Chapel Hill. Jeff Gardner has been working closely with the Collection Development Task Force on the program to build an inventory of research collections in North America, and Maxine Sitts has worked with Kaye Gapen on the Interlibrary Loan Committee's survey. The Public

Services Project is well under way with Patricia Swanson serving as coordinator of this project for OMS. Duane Webster will report more fully on OMS activities during the Business Session.

Center for Chinese Research Materials

Dr. Pingfeng Chi was appointed Director of CCRM on February 1, 1983. Pingfeng and I have been working very closely together to effect some needed economies in the operations of the Center. The future of the Center and its relationship to ARL has been the subject of discussions with the CCRM Advisory Committee, members of the Association for Asian Studies, and officials of the American Council of Learned Societies.

Publications

In addition to regular issues of the ARL Newsletter, several SPEC kits and flyers, and an occasional paper on budget allocation by John Vasi, ARL has published Cataloging Titles in Microform Sets, a report of the study conducted in 1980 for the Association by Richard Boss. The Minutes of the October 1982 Meeting are at the printer now.

Legislation and Other Federal Matters

In a departure from last year's budget process which resulted in the operations of the federal government being funded by continuing resolution, the House of Representatives proceeded swiftly this year to pass a budget resolution developed by the House Budget Committee. The resolution assumes that federal library programs will be continued at their current level of funding, including \$6 million for Title II-C of the Higher Education Act. The Senate Budget Committee has not yet completed work on its budget resolution, and action by the Senate will probably not be taken until several tax and revenue issues are resolved.

Funding for library programs is viewed as a high priority item by a substantial number of Senators and Representatives, as evidenced by the considerable anger displayed by committee members when the Department of Education's budget, with zero funding for library programs, was presented to the House Subcommittee on Labor-HHS-Education Appropriations early in March.

Library of Congress

LC has requested appropriation of \$221.8 million (plus authority to obligate \$9.5 million in receipts) for FY 1984. This is a 5.3% increase over 1983 expenditures, and includes funds for the input of vernacular records for materials in Chinese, Japanese, and Korean language to the LC database. Also included is \$2.5 million for the design and construction of a deacidification facility that can handle 500,000 books a year. David Stam testified for ARL before the House Subcommittee on Legislative Branch Appropriations. Congressional reaction to the LC request has been very favorable.

National Library of Medicine

Hearings on NLM's budget request for FY'84 have been held in the Senate, but no hearings have been held in the House nor has the Senate bill been marked up yet. NLM

has requested \$49.6 million, a \$2.5 million increase over '83 expenditures. This request is just sufficient to cover mandatory increases and maintain current services. Reauthorization hearings on the Medical Library Assistance Act (MLAA) were held in both Houses of Congress. Current authorization for MLAA is \$7.5 million. The proposed levels for three-year reauthorization are surprisingly heartening. The Senate is proposing \$10.5 million, \$11 million and \$11.8 million; and the House proposal is \$10 million, \$11 million, and \$12 million. The MLAA reauthorization is part of a large omnibus health bill, and the outcome for this legislation is not yet clear since some of the other provisions are controversial.

National Agricultural Library

NAL has requested \$9.8 million for FY'84, a 13% increase over '83 expenditures. House and Senate hearings have been held, and both committees were very friendly toward the library. The 1984 request includes 20 new positions at NAL.

In the matter of the selection of a new director; postings have now been closed, the selection panel has completed its work, and the names of five finalists have been forwarded to the Assistant Secretary for Science and Education Administration.

National Endowment for the Humanities

The House Subcommittee on Post-secondary Education has held oversight hearings on the impact of reductions of NEH's budget proposed by the Administration. The Subcommittee has recommended to the House Budget Committee that the NEH spending level for FY'84 be set at \$158 million, a \$28 million increase over the 1983 level. The Senate Subcommittee on Interior and Related Agencies has recommended a smaller increase over 1983.

John Ward, President of the American Council of Learned Societies, testified on behalf of the National Humanities Alliance before the House Subcommittee on March 3. He highlighted several areas of "basic and essential" need in the humanities that merit the attention of Congress and the Endowment in the years ahead. These areas, according to Mr. Ward, are preservation of research resources, help for young scholars, and humanities education at the elementary and secondary school level.

House hearings on NEH appropriations are scheduled for May 3; Carlton Rochell will present testimony for ARL.

Tax Reform

Revised legislation to restore a tax deduction for manuscripts and art works donated by their creators to libraries and museums has been introduced in the Senate (S.427) by Senator Baucus and in the House (H.R. 1285) by Congressman Thomas Downey. The revised bills include safeguards against abuse, outlined in detail in the ALA Washington Newsletter of March 15, 1983. The bills are now in the Senate Finance and House Ways and Means Committees. Chances for passage may well have been diminished by a Washington Post series on manipulated inflation in the value of precious stones donated by collectors to the gem collection at the Smithsonian. The two issues are not directly related, but the ripple-effect of the Post series has been very evident in Congress. We will continue to work for passage of the legislation, but we are less sanguine about chances for its passage than we were last year.

Telecommunications Issues

Following the discussion at the October ARL meeting, the Board considered potential areas of ARL activity on these issues at its meeting in February. It was decided to explore the possibilities of developing an audit tool for telecommunications costs in research libraries and of forming a coalition of higher education and library organizations to monitor federal policies and legislation and to advise on strategy. Discussions about the development of an audit tool have proceeded, but no conclusion has been reached. Several organizations have expressed interest in participating in a coalition on telecommunications and a proposal for its establishment is in process.

Copyright

The Register of Copyright's report on Section 108 of the Copyright Law, "Library Reproduction of Copyrighted Works", was issued in January. The report states that, "while Section 108 . . . provides a workable structural framework for obtaining a balance between creators' rights and users' needs . . . balance has not been achieved in practice, either because the intent of Congress has not been carried out fully or because the intent is not clear." The report takes a number of positions with which librarians are in general disagreement; for example, that libraries do not have "fair use" rights but only those expressly delegated under Section 108, that libraries have traditionally lent materials with no concern for the copyright law, that photocopies provided through ILL are not loans but reprints, and that the law requires librarians to monitor and to a certain extent control the photocopying that occurs on their premises.

The Register makes twelve recommendations to the Congress. The most important of these are that all parties affected by library reproduction of copyrighted works be "encouraged to participate in existing collective licensing arrangements" (such as the Copyright Clearance Center), or to develop new arrangements to facilitate compensation for copying; that further guidelines with respect to present and new photocopying practices be developed; that new preservation techniques (i.e. optical disc technologies) be reviewed by all parties and a common position on the copyright implications be prepared for Congress; that the "umbrella statute" proposed by publishers to "encourage publisher and user participation in collective licensing schemes" be enacted, and that libraries be required to locate and reproduce the publisher's notice of copyright on all works photocopied. Representatives of the library community have reacted strongly to the apparent pro-publisher bias of the report.

The Register has urged that Congressional hearings be held on his recommendations. Rep. Robert Kastenmeier (D-WI) has indicated that revising the copyright law is not among his highest priorities for this session of Congress and the Senate committee seems to be occupied with off-air taping and the unauthorized reproduction of video cassettes of commercial movies. Hearings will probably be postponed until after the summer Congressional recess, although this is not certain.

The publisher's lawsuit against New York University was settled in mid-April. The publishers withdrew their complaint against the university and faculty members; in return, the university agreed to abide by the guidelines negotiated in 1976 by the Ad Hoc Committee on Copyright, the Association of American Publishers, and the Authors League. These guidelines outline permissible practices for classroom copying. They are more suitable for elementary and secondary schools than for colleges and universities, and therefore the NYU settlement does not improve the situation for higher education

in general.

ARL has maintained close liaison regarding copyright with other library and higher education organizations during the last six months. We have participated with other members of the Educators Ad Hoc Committee on Copyright in discussions about strategy, and we have worked closely with officials of the Association of American University Professors to establish our support for NYU and its professors.

Relations with Other Organizations

Discussions about the establishment of an ad hoc committee of ARL and the Association of American University Presses to explore some copyright-related issues in the context of the academic community have not borne fruit, largely because the AAUP Board was concerned about the danger of compromising the sustained efforts of "the Association of American Publishers (AAP) to have the prohibition of multiple copies of copyrighted materials . . . enforced." This is an unfortunate but not surprising response to ARL overtures; however, we are continuing to explore other opportunities for dialogue with the publishing community.

I have agreed to participate in a panel discussion at the annual meeting of the Society for Scholarly Publishing (SSP) on May 20. Fred Spilhaus, Executive Director of the American Geophysical Union, Ben Russek, Chairman of Crane Russek, and I will discuss what is a fair and reasonable price for a scholarly publication. The debate should be a lively one as the audience at SSP is usually very much interested in the viewpoint of research librarians, although they do not always agree with that viewpoint.

The ACLS Committee on Scholarly Communications, an offspring of the National Enquiry, has commissioned the preparation of a proposal to establish a center or office for scholarly communication within ACLS. Some of the activities of this office may well parallel strategies and activities outlined in objective no. 1 of the ARL Five-Year Plan. As the ARL representative on the Committee, I have participated in discussions leading to this step, and have met with Herbert Morton, who is writing the proposal, to discuss the role of research libraries in the system of scholarly communication, and to explore our particular needs for information about the functioning of that system.

The ACLS Conference of Secretaries met on April 14-15, and ACLS itself on April 16. On the 14th, Alfred Sumberg of the Association of American University Professors and I presented current issues in copyright and higher education, and I attended the remainder of the ACLS meeting at the Council's invitation. This event will be discussed in more detail in my oral report.

* * * * *

ARL has been involved in a wide range of activities on behalf of its member institutions since I reported to you in October of 1982. Many of these activities have already been reported in various issues of the Newsletter, most of the activities have been in collaboration with other organizations with interests similar to ours, some activities show great promise of success while others are less promising. All are more or less attuned to the goal of ARL as articulated in the opening paragraph of my report. The discussion at the second Business Session will focus these activities even more clearly in the months and years to come.

April 27, 1983

APPENDIX D

May 3, 1983

BIBLIOGRAPHIC SERVICE DEVELOPMENT PROGRAM Progress Report to the Association of Research Libraries

STANDARDS AND GUIDES

1. The proposed application level protocol was delivered by Professor Aagaard, Northwestern University. The protocol is the top and most specific layer of the seven-layered protocol being implemented by the Linked Systems Project. Work on the overall project is well underway and will be tested early in 1984. During the course of the development of the application layer it was discovered that potentially duplicate work was underway in Canada. A small grant provided funds for travel to see that the efforts in the two countries were at least compatible. It proved not possible to make the protocols identical since the countries are each trying to solve different problems with the first implementation. The implementation of the Aagaard application layer work will provide a prototype for evaluation purposes and ultimately should lead to an adoption by the standards community.

2. One of the more perplexing problems facing librarians is the recording of detailed holdings and locations in bibliographic databases. A proposed standard was developed and tested and CLR funded a conference to review the standard and the results of pilot applications. The meeting led to modest refinements and the standard-setting process is now in motion.

3. Martha Williams at the University of Illinois completed an analysis of the MARC database and its changes over time. The report was submitted to the Council and will be available through ERIC.

4. Discussions have been held with the Library of Congress to encourage the development of a format for recording AACR II rule interpretations in machine-readable form. CLR was prepared to contract for the development of such a format when LC indicated that it wanted a similar but more extensive project. In the end, LC issued an RFP for the development of a format that will accommodate not only the rule interpretations but the rules themselves and all of the MARC formats.

ACCESS TO BIBLIOGRAPHIC DATA

1. Late in 1982, OCLC announced that it would copyright its database. During the San Antonio meeting of the BSDP Program Committee a long discussion of the implications of that action was held. Recently expressed concerns are likely to bring the topic to the agenda for the next meeting as well.

2. Support was provided for a meeting of the Network Advisory Committee to the Librarian of Congress to discuss the implications of a new and apparently spreading trend -- the development of state bibliographic service agencies. The BSDP Program Committee has been concerned about the trend for some time and will watch carefully the discussions and conclusions that may emerge. In order to key the discussion, a consultant has been retained to summarize the status of state-based bibliographic service agencies. Several of the consultants who have recommended the development of such services were asked to participate in the proceedings.

3. The Rutgers project to develop the methodology for creating a database of machine-readable texts in the humanities is nearing completion with preliminary reports suggesting difficulties in obtaining detailed information about these files. Funding for the continuation of the project is expected to come from the National Endowment for the Humanities.

LINK BIBLIOGRAPHIC DATABASES

1. Phase II of the Linked Systems Project was completed and all reports received. Thus, all design work for the linking has been completed and the proponents have begun on the third phase. The timetable for the telecommunications portion, known as the System Network Interconnection (SNI), was extended for eight months because of complications in developing the protocols at the transport and session layers of the protocol. The Authorities Implementation work is now underway and it is anticipated that the links will be tested, using authority records, early in 1984. A small related project has just been started involving the institutions effecting the link of their systems and is aimed at identifying the requirements for handling other functions over the link.

2. During the San Antonio meeting of the BSDP Program Committee a full scale review of the Linked Systems Project was held. The general conclusion was that the project is tracking well, despite some modest delays, and will make major contributions to linking technology and the development of telecommunication protocols.

NAME AUTHORITY STRUCTURE

1. Until mid-1982 the Name Authority File Service was planned as a joint management effort involving the Research Libraries Group for system management and the Library of Congress for technical management. Because of the success of several LC initiatives to incorporate bibliographic work of other libraries into that of LC, the Library of

Congress indicated that it wished to accept operating responsibility for the Name Authority File Service. All participants agreed that this was desirable and that it would not require a major revision of established plans. The document, Requirements for a Name Authority File Service, has been revised and will be published shortly.

2. The Authorities Implementation project of LSP got underway and will include a test of all project products in early 1984.

SUBJECT AUTHORITY STRUCTURE AND SUBJECT ACCESS

1. After discussions with the Library of Congress and interested parties, LC indicated an inability to distribute its Library of Congress Subject Headings (LCSH) any more frequently than once per year. Efforts had been made to encourage LC to distribute the updated file quarterly. Until certain internal system problems are resolved only annual updates will be available.

2. Pauline Cochrane's final report on work with LC's Subject Heading Division to establish procedures strengthening the cross-reference structure of LCSH has been received. At the conclusion of the project four libraries were routinely contributing suggested changes. Other participants will be phased in as LC staff is able to handle the load. A new position has been created by LC to handle these and other cooperative projects within the Subject Heading Division. Cochrane's report will be released by CLR in the near future.

CONSER

1. Partial support was provided for the ARL/NFAIS project to append information to records linking titles to the appropriate abstract or indexing service. The grant is conditional upon receipt of sufficient funds from other sources to complete the project.

2. Substantial staff time has been devoted to assisting the NEH-CONSER newspaper project, designed to assemble bibliographic information for American newspapers.

BIBLIOGRAPHIC PRODUCTS AND SERVICES

1. The final reports of the five online catalog evaluation projects were received. In an effort to evaluate the implications of the results for libraries and system designers, a conference was held at the Aspen Institute, Wye Plantation in December 1982. As additional fuel for the discussions, two papers were commissioned: one by David Bishop, University of Georgia, on a library manager's analysis of a small segment of the online catalog study data, and the second by Gary

Lawrence and Joe Matthews on the costs and features of online catalogs. The proceedings of the conference are now available from the Council (\$10.00, prepaid). The proceedings include the Bishop paper and the summaries of all of the online catalog studies. The results of the online catalog study have been discussed at several meetings, including ASIS and ONLINE, and further discussions are scheduled for the annual ALA meeting. Papers have been published by project participants and CLR staff and a book based on the study will be published by Neal-Schumann in June 1983.

2. The project to develop programs to capture bibliographic records from large shared cataloging databases for reformatting and subsequent use in bibliographies and scholarly papers has received additional support to help bring the effort to completion. Software for manipulating records on Apple II+ computers has been completed and work on a version for the IBM personal computer is underway.

3. CLR staff have been involved in preliminary discussions with the Association of American Publishers to develop a proposal for establishing standards for the submission of manuscripts to publishers in machine-readable form. The details of how the effort will proceed are now being resolved.

COST CONTROL

1. The University of California, Division of Library Automation was awarded a grant to prepare a paper on the costs and features of online catalogs. A draft was ready for consideration at the Wye meeting on online catalogs and, responding to criticisms of that draft, a new version is being prepared for review and subsequent distribution. Joe Matthews is cooperating on this project.

SERVICE CONTINUITY

1. CLR staff continue to work with the Library of Congress to assure that participants in the Name Authority File Service will have ways to contribute suggestions to the program. The Name Authority File Service Task Force has been involved in these discussions.

USER GUIDANCE AND INFORMATION

1. A meeting focused on training users of online catalogs was held in San Antonio, Texas immediately following the ALA mid-winter meeting. Individuals responsible for training users of computer catalogs discussed methods that worked and others that did not. Vendors of online systems participated as well. Marsha McClintock, Ohio State University Libraries, has prepared proceedings of the meeting, which are being reviewed prior to publication.

APPENDIX E

OFFICE OF MANAGEMENT STUDIES SUMMARY OF 1982 ANNUAL REPORT*

Introduction

In recent years, universities' support for their research libraries has remained relatively stable. Repeated efforts to obtain more support do not seem to have made a significant difference, while growing financial constraints in higher education provide little optimism for improvement. Declining enrollment coupled with rising costs are forcing universities to rethink their missions, question the effectiveness of their programs, and demand accountability in the use of limited resources.

This environment calls for an imaginative response that seeks to not only tighten and streamline operations but to recast the character and objectives of research libraries. These dual themes have characterized the Office of Management Studies' programs over the last 12 years. OMS efforts have been directed toward the operational, management, and training needs of the nation's largest research libraries as defined by the perspectives of their directors.

After much emphasis on the upgrading of internal management systems and procedures during the early seventies, academic and research libraries turned their attention toward improving specific components of their operations. Online bibliographic data bases reduce the amount of cataloging effort in individual libraries and provide a base for efficient access to library materials. Administrators and faculty are being educated to the complex needs of research libraries, and there is movement toward increased sharing of responsibility for building and maintaining the nation's research collections. The recognition that libraries' staffs also represent an important resource has led to a greater commitment to the development of staff skills for management and supervision and for technical work in areas such as preservation and automated systems. Many Association of Research Libraries (ARL) members have invested considerable time and effort in reviewing and improving their collection development and their services. Currently libraries are moving toward the design and operation of cooperative programs in the areas of collection development and preservation.

During this period the Office has developed new programs and services to support member libraries' efforts. The OMS training program has responded to the expressed need for better managers and supervisors; the Collection Analysis Project has provided a framework for libraries to use in analyzing their collections efforts; the Preservation Planning Program was designed to help libraries come to grips with a problem which threatens to destroy much of the nation's cultural record; a new Public Services Project is helping develop services which are more responsive to the diverse needs of changing academic communities; and the Office's publications

*The complete Office of Management Studies Annual Report for 1982 is available from the OMS.

program continues to provide important documentation in support of libraries' efforts to change, adapt and improve.

In the eighties, academic and research libraries will be continuing their efforts in some of these areas while facing a set of new concerns. For example, while it has become possible for libraries to reduce their cataloging efforts through membership in cooperative services, the task of adapting to this new mode of operation is by no means finished. Similarly, technology that assists with the management of collections and services concurrently creates new challenges related to shifting to online catalogs, automating integrated library systems, and providing online bibliographic searching for more technologically sophisticated users.

External trends also are influencing libraries' interest in improving services. The knowledge explosion, the introduction of new ways of recording and delivering printed material, the rise of commercial information services, and the increasing prominence of the service sector of the economy all have affected libraries. New service possibilities, however, coexist with declining or stable budgets and varying rates of inflation. Capital investment in technology carries the risk of incurring heavy financial obligations for equipment that may become obsolete within a few years.

An important and unresolved question is whether the library of the future will be much the same as in the past. Certainly the need for libraries as repositories may be much less important in the future than it has been, and the library's emerging role as an intermediary in the search for information is apt to increase. However, regardless of the extent of change, the challenge for the present is to apply new technologies appropriately—in a cost-effective manner—and to help staff and users develop the skills to make the most efficient use of available information resources.

Intuitively, librarians have known that there are important differences among their users; that different groups have different needs and require different services. User segmentation—the definition of groups of users and their needs—is a complex topic; however, it is one that public service institutions must address in tandem with institutional needs and the library's role in meeting them. Also, it is obvious that a more technologically oriented environment in which microcomputers are everyday tools will influence changes in the ways users gain access to information. Although some of the accompanying technological implications for libraries are not yet clear, weighing the demands of users for information from different sources, deciding which materials must be available locally, improving access to local facilities, and meeting long-distance requests are concerns that require immediate consideration. And in all of this, an overriding need is to solve the complex economic equation in which information and cost appear to be constants that frequently override the desire to provide whatever is needed free or at minimal expense to individuals.

Efforts to adapt to a changing environment are evident among the individuals and institutions that have participated in OMS programs during the past year. Thirty libraries undertook or pursued self-study efforts designed to assist improvements in their organizations, dealing with topics that ranged from general planning efforts to more specific operational projects such as reorganization of

technical services. Cooperative collection analysis and planning for resource sharing emerged as top priorities within the Collection Analysis Project. Eighteen applications have been received for pilot studies to help libraries analyze their public services and plan to improve them.

Individual library efforts to resolve operational problems have led to increased use of the Systems and Procedures Exchange Center. The list of SPEC publications shows that new kits and flyers are available on a variety of topics ranging from document delivery to cost studies — illustrating the wide-ranging requirements of academic and research libraries for information.

Investments in staff productivity and effectiveness continue to be a major concern. OMS training and staff development programs during the past year involved a large number of ARL librarians and libraries. Over 200 individuals participated in basic Management Skills Institutes during 1982 and there have been more requests from libraries for OMS expertise in tailoring events to the local situation. Other training events dealt with stress management, coping with change, developing motivation, improving leadership, and operating effective performance appraisal programs. Many libraries are requesting training programs designed for particular management levels and responsibilities, and the special focus workshop and Advanced Management Skills Institute are planned with such needs in mind.

A study of ARL member libraries' use of OMS services requested by the OMS Advisory Committee reveals that 107 of the 115 members have at some time during the past 12 years taken advantage of at least one major OMS program and that in many cases more than one Office program or service has been applied. The feedback from ARL directors in response to a major effort to assess Office priorities and directions has been encouraging in our new efforts to provide more sharply focused and useful programs.

For 1983, our priorities are oriented to operating current programs, to continuing to develop OMS capabilities, and to searching for new ways to assist the membership. Academic Library Program studies will continue, enriched by the new Public Services Project. The Systems and Procedures Exchange Center, while pursuing a full schedule of research and publication activities, will continue to respond to individual library needs. Within the Organizational Development and Staff Training Program, an increased schedule of basic events already has been established, together with efforts to extend programming to meet public services concerns and the developmental needs of top management. These activities follow a common theme: they involve what members and colleagues tell us is on their personal and institutional agendas. The greatest influence on OMS success remains the members' communications, interests, and criticisms, and it is on such collaboration that its future depends.

Highlights of OMS Activities in 1982

The OMS received a \$250,000 grant from the General Electric Corporation to support a two-year Public Services in Research Libraries project. The grant provides for the development and testing of a self-study process for analyzing services, including study manuals and documentation, assistance for consultant training, and support for research projects related to services.

Thirty libraries participated in self-studies; four libraries completed studies. More than one-third of the libraries conducted Collection Analysis Project studies.

The third Consultant Training Program class, consisting of 15 members, was chosen and trained, raising the total number of consultant trainees to 55. Trainees continued to work with the OMS staff on self-study, training, and research/writing projects.

The Systems and Procedures Exchange Center (SPEC) issued 10 SPEC Kits/Flyers, maintained 400 subscriptions, and distributed over 5500 publications. SPEC filled 200 information requests and conducted five surveys.

The Eugene and Agnes G. Meyer Foundation awarded \$50,000 for the Washington Consortium of Universities to conduct a one-year study of member libraries' collections and resource sharing efforts. The consortium is using the OMS Collection Analysis Project in member libraries, and OMS staff will design and lead the resource sharing component.

The NEH-funded Preservation Planning Program was completed in June with the publication of a self-study manual, a technical resource notebook and self-study reports from Dartmouth, Virginia, and Washington. The OMS received an additional \$8,000 grant from NEH to produce and make widely available the technical resource notebook.

Within the Organizational Training and Staff Development Program, activities included six Management Skills Institutes, one Advanced Management Skills Institute, and 14 training events for ARL libraries.

The OMS published a summary of the October, 1981 meeting on research library economics, titled The Economics and Financial Management of Research Libraries, and developed an occasional paper on budgeting for January 1983 publication.

OMS staff designed, planned, and operated a New York State Library Conference on Planning for Collection Development. A summary of the presentations and discussions has been printed for the participants and for general distribution.

The OMS Advisory Committee reviewed findings of a 1981 OMS Assessment Survey, concluding that ARL members are frequent users of OMS products and services and hold generally positive opinions about them. In response to concerns of some respondents, the Committee and OMS staff planned for shifts in program emphasis. A part of this effort involved changes in pricing strategies to reflect ARL support for the Office.

OMS Priorities for 1983

Every year, the OMS staff reviews the Office program with the OMS Advisory Committee. That review provides the basis for setting priorities for the following year. For 1983, the following expectations have been established:

1. Academic Library Program

There are three activities in this area: overall coordination and promotion of the program, conduct of self-studies, and operation of the Consultant Training Program. During 1983, coordination and promotion will follow established guidelines, including efforts to encourage and answer inquiries about participation, and to enhance visibility of the programs through participation in association meetings and other activities.

In the ALP, OMS expects to operate about 15 library studies, with OMS staff sharing the consultant assignments with consultant trainees. Plans for some of these studies are already under way, as well as efforts to advance cooperative collection development efforts, to extend the availability of the Planning Program for Small Academic Libraries through ACRL collaboration, and to conduct public services pilot studies.

Activities planned for the Public Services Project during 1983 include selecting six libraries for pilot services self-study projects and conducting the studies with the assistance of consultant trainees. Also, research grant projects will be operating during the year with OMS assistance and support. Results of the projects will be published.

During 1983, a fourth class of consultant trainees will be selected and trained. Study, research/writing, and training assignments for the first three classes will continue, including continuing evaluation and counseling for all trainees by the OMS staff.

2. Information Exchange and Publications Program

Assisted by enhanced in-house personnel and computer support, the Systems and Procedures Exchange Center will pursue improvements in the Kit/Flyer program during 1983, produce additional publications, and provide research support for member projects and activities. Ten kits and flyers will be published, as well as other publications including collaborative research/writing program products. Surveys will be limited to one general mail survey and four selective telephone inquiries. Three to five on-demand surveys for members will be conducted. The staff will refine SPEC files and work to improve member access to files and publications.

3. Organizational Training and Staff Development

Three basic Management Skills Institutes will be conducted during the upcoming year, with seven additional institutes already scheduled by special request of individual libraries and organizations. Three advanced institutes are planned for 1983, as well as 12 Special Focus Workshops. In addition to these events, the Office hopes to design and conduct an Executive Training Workshop for ARL directors and a series of public services workshops on such topics as evaluation of services, improving relations with users, and promotion of services programs.

The film program will continue to operate as in past years; however, an effort will be made to evaluate its viability and prospects for the future. Additional projects include investigation of the use of audio and video cassette equipment for

use in training programs, and an inquiry into what is needed for in-house training efforts.

4. Research and Development

Last year's report noted the Office intention to plan and conduct a review of the impact of CAP projects on participating libraries. Efforts to obtain funding, however, have not been successful. In part, this has been due to the perceived need to concentrate resources on collaborative efforts among libraries as noted above, rather than on further work on single collection studies. Consequently, in response to libraries' interest in collaborative collection studies, the Office will shift its priorities to developmental work in this area. A cooperative collection analysis proposal currently is being developed.

Further development and extension of the Collaborative Research/Writing Program in 1983 is planned, with efforts under way to identify individuals who wish to participate, and to provide support for their efforts. Both Occasional Papers and SPEC Kits and Flyers will result from these efforts.

As a follow-up to the Economics of Research Libraries publication, the OMS explore the continuation of efforts to help libraries improve financial analysis and planning.

Work on a Survey Assistance Service will be advanced through determining studies to be made available, proposal preparation, and initial description and promotional activities.

Bibliography of OMS Publications and Related Documents, 1982

I. General

Association of Research Libraries. Office of Management Studies. Annual Report, 1981. Washington, D.C., OMS, 1982.

New York State Library Conference on Planning for Collection Development, May 12-13, 1982. Summary of Papers and Discussions. Sponsored by the New York State Library; Conducted by the Office of Management Studies, Association of Research Libraries. Washington, D.C., OMS, 1982. 47p.

Association of Research Libraries. Office of Management Studies. Systems and Procedures Exchange Center. SPEC Flyers and Kits, #80-89. Washington, D.C., 1982.

- Specialty Positions. #80, January, 1982.
- Services to the Disabled. #81, February, 1982.
- Document Delivery Systems. #82, March, 1982.
- Approval Plans. #83, April, 1982.
- Public Services Goals and Objectives. #84, May, 1982.
- Personnel Classification Schemes. #85, June, 1982.
- Professional Development. #86, July-August, 1982.
- Collection Description and Assessment. #87, September, 1982.

- Corporate Use of Research Libraries. #88, October, 1982.
- Technical Services Cost Studies in ARL Libraries. #89, November-December, 1982.

Atlanta College of Art Library. The Past, Present, and Future: A Final Report of the Collection Assessment Study, 1981-1982. Atlanta, 1982.

The Economics and Financial Management of Research Libraries: a report on an exploratory meeting sponsored by The Association of Research Libraries and The Research Libraries Group, Inc., October 14, 1981, Washington, D.C. Supported by the Council on Library Resources, Inc. Prepared by the Office of Management Studies, ARL, and the Council on Library Resources. Washington, D.C., OMS, March, 1982.

"Editorial: Communicating the Art of Management," Journal of Academic Librarianship (July, 1982) 131.

Gardner, Jeffrey J. "Planning Techniques for Developing Coordinated Collection Development Plans," pp. 15-18 in New York State Library Conference on Planning for Collection Development, May 12-13, 1982: Summary of Papers and Discussions. Washington, D.C., 1982.

"Should SPEC Kits be Continued: JAL Readers Respond," Journal of Academic Librarianship (November, 1982) 296, 299.

Sitts, Maxine K., "Management Studies," p. 51 in ALA Yearbook, 1982. Chicago, American Library Association, 1982.

Vasi, John. Budget Allocation Systems for Research Libraries. Occasional Paper no. 7. Washington, D.C., Office of Management Studies, ARL (In press).

Webster, Duane E. "Administrative Instruments for Organizational Development," Presentation at the University of Guadalajara, September, 1982.

_____. "Issues in the Financial Management of Research Libraries," Journal of Library Administration (In press).

_____. "Risk Capital for Library Development." Presentation at the Fourteenth Annual Alumni-in-Residence Program, University of Michigan, School of Library Science. (In press).

II. Collection Analysis Project Studies

University of Illinois, Chicago Circle. Collection Analysis and Management Project. Final Report. The Library, University of Illinois at Chicago Circle, April 1982. 101p.

University of Notre Dame. University Libraries. Collection Analysis Project: Final Report. Notre Dame, Indiana, August, 1981. 24p.

III. Small Libraries Planning Project

Alverno College. Library Media Center. Report of a Self Study Carried Out in 1982 Under the Small Libraries Planning Project, Association of Research Libraries. 2 vols. Milwaukee, WI, 1982.

Centre College Libraries. Self Study Report. September, 1982.

DePauw University Libraries. Self-Study Report. Greencastle, Indiana, DePauw University, February 26, 1982. 195p.

Gannon University. Report of The Nash Library Evaluative Self-Study. Erie, PA. March, 1982. 282p.

Huntington College. Small Library Planning Program: Report of an Assisted Self Study, February 1981-June, 1981. Huntington, Indiana. October, 1981.

University of Evansville. Clifford Library and Learning Resources Self-Study Report. Evansville, Indiana, February, 1982. 120p.

Webster, Duane E., and Maxine K. Sitts. "A Planning Program for the Small Academic Library: The PPSAL," Journal of Library Administration 2 (Summer/Fall/Winter, 1981) 129-144.

IV. Organizational Screening Studies

Ohio State University Libraries. Final Report of the Task Force on Technical Services Organization. Columbus, Ohio, March 17, 1982.

V. Preservation Planning Program

Darling, Pamela W. "Finally, A Preservation Program Par Excellence," Library Scene 10 (March, 1981), p. 6.

Darling, Pamela, with Duane E. Webster. Preservation Planning Program: An Assisted Self-Study Manual for Libraries. Washington, D.C., Office of Management Studies, 1982. 117p.

_____. Preservation Planning Program Resource Notebook. Washington, D.C., Office of Management Studies, 1982. 626p.

VI. Consultant Training Program

Euster, Joanne R., ed. "ARL/OMS Consultant Training Program. Contributions by Duane E. Webster, Jordan M. Scepaniski, William G. Jones, Bella Z. Berson, Fred Heath, Charles B. Lowry, Phyllis E. Jaynes, Joanne R. Euster, and James Alsip." Journal of Academic Librarianship 8 (September, 1982) 200-210.

Sources of Financial Support for OMS Programs in 1982*

1. Association of Research Libraries	\$ 75,000
2. Council on Library Resources	60,000
3. Andrew W. Mellon Foundation	50,000
4. Lilly Endowment	3,500
5. H.W. Wilson Foundation	2,118
6. National Endowment for the Humanities	18,752
7. CLR/Economics of Research Libraries	6,289
8. Meyer Foundation	13,502
9. General Electric Foundation	31,726
10. National Endowment for the Humanities (notebook)	8,325
11. Interest on cash reserve	18,200
12. Income from Sales and Fees	185,000
TOTAL	<u>\$472,412</u>

OMS Program Expenditures in 1982

1. Research & Development	\$ 20,100
2. Academic Library Program	182,000
3. Information Collection & Dissemination	77,000
4. Training	60,000
5. Separately funded:	
a. NEH Preservation Project	18,752
b. Lilly Small Library Program	3,500
c. Wilson SPEC Distribution	2,118
d. CLR/Collection Assessment	6,289
e. Meyer Foundation	13,502
f. General Electric Foundation	31,726
g. National Endowment for the Humanities Notebook	8,325
6. OMS operations, planning and grant management	49,100
TOTAL	<u>\$472,412</u>

OMS Line Item Expenditures for 1982**

1. Salaries and benefits	\$258,200
2. Consultant Fees	9,500
3. Travel	78,500
4. Supplies and Materials	41,000
5. Printing and Duplicating	41,500
6. Equipment	6,300
7. Other Costs	37,000
8. Grants to Institutions	0
TOTAL	<u>\$472,000</u>

* Detailed OMS financial reports are included in the ARL Minutes as part of the audited ARL accounting statements. In 1982, OMS fiscal year was changed from October-September to January-December.

** Figures have been rounded off for this report.

APPENDIX F-1

ATTENDANCE AT 102ND MEMBERSHIP MEETING
BANFF, ALBERTA, CANADA

May 5-6, 1983

University of Alabama Libraries Not Represented	University of California, Santa Barbara Library Allen B. Veaner
University of Alberta Library Peter Freeman	Canada Inst. for Scientific & Technical Info. Elmer V. Smith
University of Arizona Library W. David Laird	Case Western Reserve University Libraries Ann Drain
Arizona State University Library Donald Riggs	Center for Research Libraries Donald B. Simpson
Boston Public Library Liam Kelly	University of Chicago Library Martin D. Runkle
Boston University Library Not Represented	University of Cincinnati Libraries Not Represented
Brigham Young University Library Sterling J. Albrecht	University of Colorado Library Clyde Walton
University of British Columbia Library Douglas McInnes	Colorado State University Library Le Moyne W. Anderson
Brown University Library Merrily E. Taylor	Columbia University Libraries Patricia Battin
University of California, Berkeley Library Joseph Rosenthal	University of Connecticut Library John P. McDonald
University of California, Davis Library Bernard Kreissman	Cornell University Libraries Not Represented
University of California, Irvine Library Calvin J. Boyer	Dartmouth College Libraries Margaret A. Otto
University of California, Los Angeles Library Russell Shank	Duke University Libraries Elvin E. Strowd
University of California, Riverside Library Joan Chambers	Emory University Library Not Represented
University of California, San Diego Library Millicent D. Abell	University of Florida Libraries Not Represented

Florida State University Library
Not Represented

Georgetown University Library
Joseph E. Jeffs

University of Georgia Libraries
David F. Bishop

University of Guelph Library
Margaret Beckman

Harvard University Library
Oscar Handlin

University of Hawaii Library
John R. Haak

University of Houston Libraries
Robin Downes

Howard University Libraries
Not Represented

University of Illinois Library
Hugh C. Atkinson

Indiana University Libraries
Elaine F. Sloan

University of Iowa Libraries
Dale M. Bentz

Iowa State University Library
Warren B. Kuhn

John Crerar Library
Not Represented

Johns Hopkins University Library
Susan K. Martin

University of Kansas Library
Clinton N. Howard

University of Kentucky Libraries
Not Represented

Kent State University Libraries
Not Represented

Library of Congress
William J. Welsh

Linda Hall Library
Not Represented

Louisiana State University Library
George Guidry, Jr.

McGill University Library
Marianne Scott

McMaster University Library
Graham R. Hill

University of Manitoba Libraries
Earl Ferguson

University of Maryland Library
H. Joanne Harrar

University of Massachusetts Libraries
Richard J. Talbot

Massachusetts Institute of Technology Libs.
Jay K. Lucker

University of Miami Library
Frank Rodgers

University of Michigan Library
Richard M. Dougherty

Michigan State University Library
Richard E. Chapin

University of Minnesota Libraries
Eldred Smith

University of Missouri Library
Thomas W. Shaughnessy

National Agricultural Library
Joseph H. Howard

National Library of Canada
Guy Sylvestre

National Library of Medicine
Not Represented

University of Nebraska-Lincoln Libraries
Not Represented

Newberry Library
Not Represented

University of New Mexico Library
Paul Vassallo

New York Public Library
David H. Stam

New York State Library
Not Represented

New York University Libraries
Not Represented

University of North Carolina Libraries
James F. Govan

Northwestern University Libraries
John P. McGowan

University of Notre Dame Libraries
Robert C. Miller

Ohio State University Libraries
William J. Studer

University of Oklahoma Library
Not Represented

Oklahoma State University Library
Roscoe Rouse

University of Oregon Library
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Texas A & M University Library
Irene B. Hoadley

University of Toronto Libraries
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Tulane University Library
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University of Utah Libraries
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Not Represented

Washington State University Library
Allene F. Schnaitter

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Robert Lee

University of Wisconsin Libraries
Joseph Treyz

Yale University Libraries
Rutherford Rogers

York University Libraries
Ellen Hoffmann

APPENDIX F-2

ATTENDANCE BY THE MEMBERSHIP - NAME INDEX

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Albrecht, Sterling J.	Brigham Young University Library
Anderson, Le Moyne W.	Colorado State University Library
Anthony, Donald C.	Syracuse University Libraries
Atkinson, Hugh C.	University of Illinois Library
Battin, Patricia	Columbia University Libraries
Bechanan, Gordon H.	Virginia Poly. Inst. and State Univ. Libraries
Beckman, Margaret	University of Guelph Library
Bentz, Dale M.	University of Iowa Libraries
Billings, Harold W.	University of Texas Libraries
Bishop, David F.	University of Georgia Libraries
Boisse, Joseph A.	Temple University Library
Bolles, Shirley	Rutgers University Library
Boyer, Calvin J.	University of California, Irvine Library
Brown, Nancy	University of Saskatchewan Library
Chambers, Joan	University of California, Riverside Library
De Gennaro, Richard	University of Pennsylvania Libraries
Dougherty, Richard M.	University of Michigan Library
Downes, Robin	University of Houston Libraries
Drain, Ann	Case Western Reserve University Libraries
Ferguson, Earl	University of Manitoba Libraries
Forth, Stuart	Pennsylvania State University Library
Frantz, Ray	University of Virginia Libraries
Freeman, Peter	University of Alberta Library
Govan, James F.	University of North Carolina Libraries
Guidry, George	Louisiana State University Library
Haak, John R.	University of Hawaii Library
Handlin, Oscar	Harvard University Library
Hanson, Roger K.	University of Utah Libraries
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Hill, Graham R.	McMaster University Library
Hoadley, Irene B.	Texas A&M University Library
Hoffman, Ellen	York University Libraries
Howard, Clinton N.	University of Kansas Library
Howard, Joseph H.	National Agricultural Library
Hunt, Donald R.	University of Tennessee Libraries

Jeffs, Joseph
Jenkins, Darrell

Kelly, Liam
Kreissman, Bernard
Kuhn, Warren B.

Laird, W. David
Lee, Robert
Leinbach, Philip E.
Lucker, Jay K.

McBurney, Margot B.
McDonald, John P.
McGowan, John P.
McInnes, Douglas
Maloy, Robert
Martin, Susan K.
Miller, Robert C.

Nitecki, Joseph Z.

Otto, Margaret A.

Pings, Vern M.

Riggs, Donald
Rodgers, Frank
Rogers, Rutherford D.
Rosenthal, Joseph
Rouse, Roscoe
Runkle, Martin D.

Scepanski, Joseph
Schnaitter, Allene F.
Scott, Marianne
Shank, Russell
Sharrow, Marilyn
Shaughnessy, Thomas W.
Shipman, George W.
Simpson, Donald B.
Sloan, Elaine F.
Smith, Eldred
Smith, Elmer, V.
Stam, David H.
Strowd, Elvin E.
Studer, William J.
Sylvestre, Joseph Guy

Talbot, Richard
Taylor, Merrily E.
Thompson, James

Georgetown University Library
Southern Illinois University Library

Boston Public Library
University of California, Davis Library
Iowa State University Library

University of Arizona Library
University of Western Ontario Libraries
Tulane University Library
Massachusetts Inst. of Technology Libraries

Queen's University Library
University of Connecticut Library
Northwestern University Libraries
University of British Columbia Library
Smithsonian Institution Libraries
Johns Hopkins University Library
University of Notre Dame Libraries

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University of California, Los Angeles Library
University of Toronto Libraries
University of Missouri Library
University of Oregon Library
Center for Research Libraries
Indiana University Libraries
University of Minnesota Libraries
Canada Inst. for Scientific & Technical Info.
New York Public Library
Duke University Libraries
Ohio State University Libraries
National Library of Canada

University of Massachusetts Libraries
Brown University Library
Rice University Library

Toombs, Kenneth E.
Treyz, Joseph H.

University of South Carolina Libraries
University of Wisconsin Libraries

Vassallo, Paul
Veaner, Allen

University of New Mexico Library
Univ. of California, Santa Barbara Library

Walton, Clyde
Weber, David C.
Welsh, William J.
Woodsworth, Anne
Wyatt, James F.

University of Colorado Library
Stanford University Libraries
Library of Congress
University of Pittsburgh Libraries
University of Rochester Libraries

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Maxine K. Sitts, Information Services Specialist, Office of Management Studies
Patricia Swanson, Public Services Specialist, Office of Management Studies

APPENDIX F-3

ATTENDANCE BY THE CARL MEMBERSHIP - INSTITUTION INDEX

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APPENDIX F-4

ATTENDANCE BY CARL MEMBERS - NAME INDEX

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Birdsall, William	Dalhousie University Library
Briggs, Geoffrey	Carleton University Library
Brown, Nancy	University of Saskatchewan Libraries
Cartier, Céline	Université Laval Libraries
Cloutier, M. Guy	Université de Sherbrooke Library
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Ellis, Richard	Memorial Univ. of Newfoundland Libs.
Ferguson, Earle	University of Manitoba Libraries
Freeman, Peter	University of Alberta Library
Halliwell, Dean	University of Victoria Library
Hill, Graham R.	University Librarian Library
Hoffmann, Ellen	York University Libraries
Joffe-Nicodème, Arlette	Université de Montréal Libraries
Laidlaw, Sheila	University of New Brunswick Library
Lee, Robert	University of Western Ontario Libs.
MacDonald, Alan H.	University of Calgary Libraries
McBurney, Margot	Queen's University Library
McInnes, Doug	University of British Columbia Libs.
Perron, Herbert	Université du Québec Libraries
Richer, Yvon	University of Ottawa Library
Scott, Marianne	McGill University Library
Sharrow, Marilyn	University of Toronto Libraries
Shepherd, Murray C.	University of Waterloo Library
Smith, Elmer	Canada Inst. for Sci. & Tech. Info.
Sylvestre, Guy	National Library of Canada

CARL Staff

Allan, Margaret, Executive Secretary

APPENDIX F-5

Guests

Barr, K. P., British Library Lending Division
Black, John, University of Guelph Libraries - Speaker
Brown, Rowland OCLC, Inc.
Brynteson, Susan, University of Delaware Libraries
Child, Margaret, Smithsonian Institution Libraries
Citron, Helen R., Georgia Institute of Technology Libraries
Clement, Hope E. A., National Library of Canada
Durance, Cynthia, National Library of Canada
Finzi, John, Library of Congress
Getz, Malcolm, Vanderbilt University Library
Gwinn, Nancy, Research Libraries Group
Haas, Warren, Council on Library Resources
Harris, Roma, School of Library & Information Science, University
of Western Ontario (representing Canadian Council on Library Schools)
Hogan, Sharon, Temple University Library - Speaker
Jones, C. Lee, Council on Library Resources
Littleton, Isaac, North Carolina State University Libraries
Loveday, Anthony, Standing Conference on National and University Libraries
MacLelland, Maggie, National Library of Canada
Mackenzie, A. Graham, University of Saint Andrews Libraries
Marcum, Deanna, Council on Library Resources
McCoy, Richard, Research Libraries Group
Nemeyer, Carol, Library of Congress (representing American Library Association)
Nevins, Kate, OCLC, Inc.
Parker, Arthur, University of Toronto Library Automated Systems
Porter, Larry, University of Guelph Library
Rawlins, Gordon, Pennsylvania State University Libraries
Raymond, Andrew, Northeast Document Conservation Center
Schrack, H. Paul, OCLC, Inc.
Snyder, Henry, Eighteenth Century Short Title Catalog Project
Steele, Colin, Australian National University Library
Virgo, Julie Carroll, Association of College and Research Libraries
Wolters, Peter, Canada Institute for Scientific and Technical Information - Speaker

APPENDIX G

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MAY 1983

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ARL Microform Project Preservation Program

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Margaret Child, Smithsonian Institution Libraries
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Andrew Raymond, Northeast Document Conservation Center
Peter Sparks, Library of Congress
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APPENDIX H

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University, Alabama 35486
D. Kaye Gapen, Dean of Univ. Librs.
(205) 348-7561

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Peter Freeman, Librarian
(403) 432-3790

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Tucson, Arizona 85721
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(602) 626-2101

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Tempe, Arizona 85281
Donald Riggs, Libn.
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Boston, Massachusetts 02117
Philip J. McNiff, Librarian
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Boston, Massachusetts 02215
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Provo, Utah 84602
Sterling J. Albrecht, Univ. Libn.
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Douglas McInnes, Librarian
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Riverside, California 92507
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Millicent D. Abell, Librarian
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The University Library
Santa Barbara, California 93106
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National Research Council of Canada
Ottawa, Canada K1A OS2
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for Univ. Libraries
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& Univ. Libn.
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Cornell University Libraries
Ithaca, New York 14850
Louis E. Martin, Univ. Libn.
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Dartmouth College Libraries
Hanover, New Hampshire 03755
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5000 Harvard Place, N.W.

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(202) 636-7234

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1408 West Gregory Drive

Urbana, Illinois 61801

Hugh C. Atkinson, Univ. Librarian
(217) 333-0790

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Bloomington, Indiana 47401

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(812) 335-3404

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Iowa City, Iowa 52242

Dale M. Bentz, Univ. Librarian
(319) 353-4450

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Ames, Iowa 50011

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35 West 33rd Street

Chicago, Illinois 60616

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Susan K. Martin, Libn.
(301) 338-8325

University of Kansas Library

Lawrence, Kansas 66044

James Ranz, Dean of Libraries
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University of Kentucky Libraries

Lexington, Kentucky 40506

Paul A. Willis, Director
(606) 257-3801

Kent State University Libraries

Kent, Ohio 44242

Hyman W. Kritzer, Assistant Provost &
Director of Libraries
(216) 672-2962

Library of Congress

Washington, D.C. 20540

Daniel J. Boorstin, Librarian
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Linda Hall Library

Kansas City, Missouri 64110

Larry X. Besant, Director
(816) 363-4600

Louisiana State University Library

Baton Rouge, Louisiana 70803

George Guidry, Jr., Director
(504) 388-2217

McGill University Library

3459 McTavish Street

Montreal, Canada H3A 1Y1

Marianne Scott, Director
(514) 392-4949

McMaster University Library

1280 Main Street West

Hamilton, Ontario, Canada L8S 4L6

Graham R. Hill, University Librarian
(416) 525-9140 Local 4359

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Winnipeg, Manitoba R3T 2N2

Canada

Earl Ferguson, Acting Director
(204) 474-9881

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College Park, Maryland 20742

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Ann Arbor, Michigan 48109
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Beltsville, Maryland 20705
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Ottawa, Ont., Canada K1A 0N4
Joseph Guy Sylvestre, Librarian
(613) 996-1623

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University of Nebraska-Lincoln
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Gerald A. Rudolph, Dean of Libraries
(402) 472-2526

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Chicago, Illinois 60610
Joel L. Samuels, Dir. of Lib. Sers.
(312) 943-9090

The University of New Mexico
General Library
Albuquerque, New Mexico 87131
Paul Vassallo, Dean of Lib. Sers.
(505) 277-4241

New York Public Library
Fifth Avenue at 42nd Street
New York, New York 10018
David H. Stam, Director of the
Research Libraries
(212) 930-0708

New York State Library
Cultural Education Center
Empire State Plaza
Albany, New York 12234
Joseph F. Shubert, State Librarian
(518) 474-5930

New York University Libraries
New York, New York 10003
Carlton C. Rochell, Dean of Libraries
(212) 598-7676

University of North Carolina Libraries
Chapel Hill, North Carolina 27515
James F. Govan, Director
(919) 962-1301

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Columbus, Ohio 43210
William J. Studer, Director
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University of Oklahoma Library
Norman, Oklahoma 73069
Sul H. Lee, Dean, University Librs.
(405) 325-2611 or 2614

Oklahoma State University Library
Stillwater, Oklahoma 74078
Roscoe Rouse, Dean of Lib. Ser.
(405) 624-6321

University of Oregon Library
Eugene, Oregon 97403
George W. Shipman, Univ. Libn.
(503) 686-3056

University of Pennsylvania Libraries
Philadelphia, Pennsylvania 19104
Richard De Gennaro, Director
(215) 898-7091

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Stuart Forth, Dean of Univ. Libraries
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University of Pittsburgh
826 Cathedral of Learning
Pittsburgh, Pennsylvania 15260
Anne Woodsworth, Assoc. Provost
for Libraries
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Princeton University Library
Princeton, New Jersey 08540
Donald Koepp, Director
(609) 452-3170

Purdue University Library
Lafayette, Indiana 47907
Joseph M. Dagnese, Director
(317) 494-2900

Queen's University
Douglas Library
Kingston, Canada K7L 5C4
Margot B. McBurney, Chief Libn.
(613) 547-5950

Rice University Library
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Houston, Texas 77001
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(713) 527-4022

University of Rochester Libraries
Rochester, New York 14627
James F. Wyatt, Director
(716) 275-4463

Rutgers University Library
New Brunswick, New Jersey 08901
Hendrik Edelman, Univ. Libn.
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University of Saskatchewan
Saskatoon, Canada S7N 0W0
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and Director of Libraries
(306) 343-4216

Smithsonian Institution Libraries
Constitution Avenue at 10th St., N.W.
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(202) 357-2240

University of South Carolina Libraries
Columbia, South Carolina 29208
Kenneth E. Toombs, Director of Libs.
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Roy L. Kidman, Librarian
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Library Affairs
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John B. Smith, Director & Dean of Lib.
(516) 246-5650

Syracuse University Libraries
Syracuse, New York 13210
Donald C. Anthony, Director
(315) 423-2574

Temple University Library
Paley Library
Philadelphia, Pennsylvania 19122
Joseph A. Boisse, Director
(215) 787-8231

University of Tennessee Libraries
Knoxville, Tennessee 37916
Donald R. Hunt, Director
(615) 974-4127

University of Texas Libraries
Austin, Texas 78712
Harold W. Billings, Director
(512) 471-3811

Sterling C. Evans Library
Texas A&M University Library
College Station, Texas 77843
Irene B. Hoadley, Director
(409) 845-8111

University of Toronto Libraries
Toronto, Ont., Canada M5S 1A5
Marilyn Sharrow, Chief Librarian
(416) 978-2292

Tulane University Library
New Orleans, Louisiana 70118
Philip E. Leinbach, Librarian
(504) 865-5131

University of Utah Libraries
Salt Lake City, Utah 84112
Roger K. Hanson, Director
(801) 581-8558

Vanderbilt University Library
419 21st Avenue South
Nashville, Tennessee 37203
Keith M. Cottam, Acting Director
(615) 322-2834

Virginia Polytechnic Inst. and State Univ.
Blacksburg, Virginia 24061
H. Gordon Bechanan, Director of Libs.
(703) 961-5593

University of Virginia
Alderman Library
Charlottesville, Virginia 22901
Ray Frantz, Jr., Librarian
(804) 924-3026 or 7849

University of Washington Library
Seattle, Washington 98195
Merle N. Boylan, Director
(206) 543-1760

Washington State University Library
Pullman, Washington 99163
Allene F. Schnaitter, Director
(509) 335-4557

Washington University Libraries
St. Louis, Missouri 63130
Charles Churchwell, Librarian
(314) 889-5400

Wayne State University Libraries
Detroit, Michigan 48202
Vern M. Pings, Director
(313) 577-4020

University of Western Ontario
DB Weldon Library
London, Ontario, Canada
Robert Lee, Director of Libs.
(519) 679-3165

University of Wisconsin Libraries
Madison, Wisconsin 53706
Joseph H. Treyz, Jr., Director
(608) 262-3521

Yale University Libraries
New Haven, Connecticut 06520
Rutherford D. Rogers, Librarian
(203) 436-2456

York University Libraries
4700 Keele Street
Downsview, Ontario, Canada M3J 2R2
Ellen Hoffmann, Acting Director
(416) 667-2235

APPENDIX I

CANADIAN ASSOCIATION OF RESEARCH LIBRARIES

MEMBERSHIP LIST

University of Alberta Library
Edmonton, Alberta T6G 2E1
Peter Freeman, Librarian
(403) 432-3790

Bibliothèque Nationale du Québec
1700 rue St-Denis
Montréal, Québec H2X 3K6
Jean-Rémi Brault,
Conservateur-en-chef
(514) 873-2155

University of British Columbia Library
1956 Main Mall
Vancouver, British Columbia V6T 1Y3
Douglas McInnes, Univ. Librarian
(604) 228-3871

University of Calgary Libraries
2500 University Drive
Calgary, Alberta T2N 1N4
Alan H. MacDonald, Director
(403) 284-5954

Carleton University
Colonel by Drive
Ottawa, Ontario K1S 5J7
Geoffrey Briggs, Univ. Librarian
(613) 231-4357

Canada Institute for Scientific
and Technical Information
National Research Council of Canada
Building M-55, Montreal Road
Ottawa, Ontario K1A 0S2
Elmer Smith, Director
(613) 993-2341

Concordia University Libraries
1455 Maisonneuve Blvd. W.
Montreal, Quebec H3G 1M8
Paul-Emile Filion, Director
(514) 879-2820

Dalhousie University Library
Halifax, Nova Scotia B3H 4H8
William Birdsall, Univ. Librarian
(902) 424-3610

University of Guelph Library
Guelph, Ontario N1G 2W1
Margaret Beckman, Chief Libn.
(514) 824-4120

Université Laval Library
Cité universitaire
Québec, Québec G1K 7P4
Céline Cartier, Directeur de
la bibliothèque
(418) 656-3545

University of Manitoba Libraries
Elizabeth Dafoe Library
Winnipeg, Manitoba R3T 2N2
Earle Ferguson, Acting Director
(204) 474-9881

McGill University Library
3459 McTavish Street
Montreal, Quebec H3A 1Y1
Marianne Scott, Director
(514) 392-4949

McMaster University Library
Mills Memorial Library
Hamilton, Ontario L8S 4L8
Graham R. Hill, Univ. Librarian
(416) 525-9140

Memorial University of Newfoundland
Elizabeth Avenue
St. John's, Newfoundland A1B 3Y1
Richard Ellis, Univ. Librarian
(709) 737-7428

Université de Montréal Library
C. P. 6128, Succ. A
Montréal, Québec H3C 3J1
Arlette Joffe-Nicodème, Directeur
des Bibliothèques
(514) 343-6905

National Library of Canada
Ottawa, Ontario K1A 0N4
Guy Sylvestre, National Librarian
(613) 996-1623

University of New Brunswick Library
Harriet Irving Library
Fredericton, New Brunswick E3B 5H5
Sheila Laidlaw, Univ. Librarian
(506) 453-4740

University of Ottawa Library
Morisset Library
65 Hastey Avenue
Ottawa, Ontario K1N 9A5
Yvon Richer, Chief Librarian
(613) 231-6856

Université du Québec Library
C. P. 8889, Succ. A
Montréal, Québec H3C 3P8
Hubert Perron, Directeur
général Service des bibliothèques
(514) 282-6124

Queen's University Library
Douglas Library
Kingston, Ontario K7L 5C4
Margot McBurney, Chief Librarian
(613) 547-5950

University of Regina Library
Regina, Saskatchewan S4S 0A2
Sidney Harland, Univ. Librarian
(306) 584-4132

University of Saskatchewan Library
Saskatoon, Saskatchewan S7N 0W0
Nancy Brown, University Librarian
(306) 343-4216

Université de Sherbrooke Library
Sherbrooke, Québec J1K 2R1
Guy Cloutier, Bibliothécaire-en-chef
(819) 565-5611

Simon Fraser University Library
Burnaby, British Columbia V5A 1S6
Ted Dobb, University Librarian
(604) 291-3265

University of Toronto Libraries
Toronto, Ontario M5S 1A9
Marilyn Sharrow, Chief Librarian
(416) 978-2292

University of Victoria Library
McPherson Library
P.O. Box 1800
Victoria, British Columbia V8W 3H5
Dean Halliwell, Univ. Librarian
(604) 721-8211

University of Waterloo Library
Waterloo, Ontario N2L 3G1
Murray C. Shepherd, Univ. Libn.
(519) 885-1211

University of Western Ontario Library
D.B. Weldon Library
London, Ontario N6A 3K7
Robert Lee, Director of Librs.
(519) 679-3165

University of Windsor Library
Windsor, Ontario N9B 3P4
Albert Mate, Univ. Librarian
(519) 253-4232

York University Libraries
4700 Keele Street
Downsview, Ontario M3J 2R2
Ellen Hoffmann, Acting Director
of Libraries
(416) 667-2235

Canadian Association of Research Libraries
7 Noel Avenue
Toronto, Ontario M4G 1B2
Margaret Allan, Executive Secretary
(416) 425-8145

ASSOCIATION OF RESEARCH LIBRARIES

REPORT ON FINANCIAL STATEMENTS

(with supplementary information)
(Modified Cash Basis)

YEARS ENDED DECEMBER 31, 1982 AND 1981

ASSOCIATION OF RESEARCH LIBRARIES
Years ended December 31, 1982 and 1981

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GARNER, BLOOM & ROBINSON, CHTD
CERTIFIED PUBLIC ACCOUNTANTS

8630 FENTON STREET, SUITE 708
SILVER SPRING, MARYLAND 20910
301-585-5300

Board of Directors
Association of Research Libraries
Washington, DC

We have examined the statements of assets and liabilities arising from cash transactions of the Association of Research Libraries as of December 31, 1982 and 1981, and the related statements of revenue collected and expenses paid and changes in fund balance, and changes in cash for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We did not examine the financial statements of the Foreign Newspaper Microfilm Project Agency Fund which reflect 1% of total assets and 15% of total revenues for 1981. These statements were examined by other auditors whose report dated February 17, 1982 has been furnished to us. Our opinion expressed herein, insofar as it relates to the amounts included for such project, is based solely upon the report of the other auditors.

As described in Note 1, the Association's policy is to prepare its financial statements on a modified basis of cash receipts and disbursements; consequently, certain revenue and the related assets are recognized when received rather than when earned, and certain expenses are recognized when paid rather than when the obligation is incurred. Accordingly, the accompanying financial statements are not intended to present financial position and results of operations in conformity with generally accepted accounting principles.

In our opinion, based upon our examination and the report of the other auditors, the financial statements mentioned present fairly the assets and liabilities arising from cash transactions of the Association of Research Libraries as of December 31, 1982 and 1981, and the revenue collected and expenses paid and changes in fund balance, and changes in cash for the years then ended, on the basis of accounting described in Note 1, applied on a consistent basis.

Garner, Bloom & Robinson, Chtd.

February 16, 1983

ASSOCIATION OF RESEARCH LIBRARIES
STATEMENTS OF ASSETS AND LIABILITIES
ARISING FROM CASH TRANSACTIONS
(Modified Cash Basis)

ASSETS

	<u>December 31,</u>	
	<u>1982</u>	<u>1981</u>
Cash in bank and on hand	\$ 43,265	\$ 60,459
Cash in savings accounts	116,851	1,963
Cash held by others - agency fund		4,763
Savings certificates	525,533	554,029
Money market investments (at market which approximates cost)		153,970
Deposits	1,163	465
Furniture and equipment, less accumulated depreciation (Note 5)	<u>52,678</u>	<u>18,601</u>
Total	<u>\$ 739,490</u>	<u>\$ 794,250</u>

LIABILITIES AND FUND BALANCES

Payroll taxes withheld	\$ 2,170	\$ 2,375
Due to Center for Research Libraries		1,354
Special programs for which the Association is accountable to the grantors	<u>242,762</u>	<u>216,451</u>
Total liabilities	<u>244,932</u>	<u>220,180</u>
General Operating Fund	127,810	142,502
Foreign Newspaper Microfilm Project		3,409
Agency Fund	<u>366,748</u>	<u>428,159</u>
Chinese Center Revolving Fund		574,070
Total fund balances	<u>494,558</u>	<u>574,070</u>
Total	<u>\$ 739,490</u>	<u>\$ 794,250</u>

See accompanying notes to financial statements

ASSOCIATION OF RESEARCH LIBRARIES
 GENERAL OPERATING FUND
 STATEMENTS OF REVENUE COLLECTED AND
 EXPENSES PAID AND CHANGES IN FUND BALANCE
 (Modified Cash Basis)

	Year ended December 31,	
	<u>1982</u>	<u>1981</u>
Revenue		
Dues	\$ 372,900	\$ 339,000
Interest	38,005	37,211
Publications	10,672	8,945
Royalties	9	19
	<u>421,586</u>	<u>385,175</u>
Expenses (Notes 3 and 4)	463,079	362,573
Less administrative expenses charged to special programs	<u>26,801</u>	<u>26,801</u>
Net expenses	<u>436,278</u>	<u>335,772</u>
Excess (deficiency) of revenue collected over expenses paid	(14,692)	49,403
Fund balance, beginning of year	<u>142,502</u>	<u>93,099</u>
Fund balance, end of year	<u>\$ 127,810</u>	<u>\$ 142,502</u>

See accompanying notes to financial statements

ASSOCIATION OF RESEARCH LIBRARIES

FOREIGN NEWSPAPER MICROFILM PROJECT AGENCY FUND
 STATEMENTS OF REVENUE COLLECTED AND EXPENSES PAID AND
 CHANGES IN FUND BALANCE
 (Modified Cash Basis)

	Year ended December 31,	
	<u>1982</u>	<u>1981</u>
Revenue		
Dues	\$	\$ 86,840
Interest		1,695
Sales to members and non-members		<u>125,156</u>
		<u>213,691</u>
Expenses		
Transfer fund balance to the Center for Research Libraries	\$ 3,409	\$
Insurance		1,661
Miscellaneous		5,294
Newspapers and microfilm		99,359
Payroll taxes		3,062
Purchases for members and non-members		95,132
Royalties		2,785
Salaries		46,044
Storage		1,686
Supplies		<u>1,697</u>
	<u>3,409</u>	<u>256,720</u>
Deficiency of revenue collected over expenses paid	(3,409)	(43,029)
Fund balance, beginning of year	<u>3,409</u>	<u>46,438</u>
Fund balance, end of year	<u>\$ -0-</u>	<u>\$ 3,409</u>

See accompanying notes to financial statements

ASSOCIATION OF RESEARCH LIBRARIES
CHINESE CENTER REVOLVING FUND
STATEMENTS OF REVENUE COLLECTED AND EXPENSES PAID AND
CHANGES IN FUND BALANCE
(Modified Cash Basis)

	<u>Year ended December 31,</u>	
	<u>1982</u>	<u>1981</u>
Revenue		
Interest income	\$ 52,319	\$ 61,625
Sales of publications	<u>69,869</u>	<u>81,187</u>
	<u>122,188</u>	<u>142,812</u>
Expenses		
Cost of publications	41,353	43,878
Postage and other expenses	2,581	3,641
Transfers to Center for Chinese Research Materials Program (Notes 3 and 4)	<u>139,665</u>	<u>104,943</u>
	<u>183,599</u>	<u>152,462</u>
Deficiency of revenue collected over expenses paid	(61,411)	(9,650)
Fund balance, beginning of year	<u>428,159</u>	<u>437,809</u>
Fund balance, end of year	<u>\$ 366,748</u>	<u>\$ 428,159</u>

See accompanying notes to financial statements

ASSOCIATION OF RESEARCH LIBRARIES

STATEMENTS OF CHANGES IN CASH
(Modified Cash Basis)

	Year ended December 31,	
	<u>1982</u>	<u>1981</u>
SOURCES OF CASH		
Excess (deficiency) of revenue collected over expenses paid		
General Operating Fund	\$ (14,692)	\$ 49,403
Foreign Newspaper Microfilm		
Project Agency Fund	(3,409)	(43,029)
Chinese Center Revolving Fund	(61,411)	(9,650)
Special Programs	<u>26,311</u>	<u>23,908</u>
Total	(53,201)	20,632
Add item not requiring the outlay of cash - Depreciation	<u>7,479</u>	<u>3,385</u>
Cash provided (absorbed) by operations	(45,722)	24,017
Decrease in deposits		429
Increase (decrease) in due to Center for Research Libraries	<u>(1,354)</u>	<u>1,354</u>
Total	<u>(47,076)</u>	<u>25,800</u>
USES OF CASH		
Decrease in payroll taxes withheld	205	1,082
Purchase of furniture and equipment	41,556	373
Increase in deposits	<u>698</u>	
Total	<u>42,459</u>	<u>1,455</u>
Increase (decrease) in cash	(89,535)	24,345
Cash, beginning of year	<u>775,184</u>	<u>750,839</u>
Cash, end of year	<u>\$ 685,649</u>	<u>\$ 775,184</u>

ASSOCIATION OF RESEARCH LIBRARIES

STATEMENTS OF CHANGES IN CASH
(Modified Cash Basis)
(CONTINUED)

	Year ended December 31,	
	<u>1982</u>	<u>1981</u>
CHANGES IN CASH		
Increase (decrease) in cash		
Cash in bank and on hand	\$ (17,194)	\$ 14,481
Cash in savings accounts	114,888	(22,912)
Cash held by others - agency fund	(4,763)	(41,675)
Savings certificates	(28,496)	(79,519)
Money market investments	<u>(153,970)</u>	<u>153,970</u>
Total	<u>\$ (89,535)</u>	<u>\$ 24,345</u>

ASSOCIATION OF RESEARCH LIBRARIES
NOTES TO FINANCIAL STATEMENTS

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of accounting

The Association's policy is to prepare its financial statements on a modified cash basis that includes recording depreciation and amortization on capitalized assets, accrued liabilities for special programs and federal and state income taxes withheld. Under this basis, revenues are recognized when collected rather than when earned, and expenditures are generally recognized when paid rather than when incurred. Consequently, dues receivable, trade accounts payable, prepaid expenses and certain accrued expenses at December 31, 1982 and 1981 are not included in the financial statements. If an expenditure results in the creation of an asset having an estimated useful life which extends substantially beyond the year of acquisition, the expenditure is capitalized and depreciated or amortized over the estimated useful life of the asset.

Fund accounting

To ensure observance of limitations and restrictions placed on the use of resources available to the Association, the accounts of the Association are maintained in accordance with the principles of fund accounting. This is the procedure by which resources for various purposes are classified for accounting and reporting purposes into funds established according to their nature and purposes. Separate accounts are maintained for each fund; accordingly, all financial transactions have been recorded and reported by fund group.

Grants are accounted for separately and classified in the liabilities section of the accompanying statements of assets and liabilities arising from cash transactions as "special programs for which the Association is accountable to the grantors".

Furniture, equipment and depreciation

Furniture and equipment are recorded at cost. Depreciation of furniture and equipment is provided on both accelerated and straight-line methods over the estimated useful lives of assets.

ASSOCIATION OF RESEARCH LIBRARIES
NOTES TO FINANCIAL STATEMENTS (CONTINUED)

2. INCOME TAXES

The Association is exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code.

3. LEASE

The Association rents its office facilities under an operating lease that expires on December 31, 1985. Future minimum lease payments at December 31, 1982 are as follows:

1983	\$ 56,980
1984	63,683
1985	<u>70,387</u>
Total	<u>\$ 191,050</u>

Total rent and storage charges were \$56,969 for 1982 and \$45,975 for 1981.

4. RETIREMENT PLAN

The Association has a retirement plan that covers substantially all full-time employees. Contributions to the plan are based on a percentage of salary for enrolled staff members. Total amounts paid in by the Association were \$61,099 and \$56,868 for 1982 and 1981 respectively.

5. FURNITURE AND EQUIPMENT

Furniture and equipment are categorized as follows:

	<u>December 31,</u>	
	<u>1982</u>	<u>1981</u>
Center for Chinese Research Materials	\$ 24,949	\$ 12,074
Academic Library Program (OMS)	21,343	15,641
Association of Research Libraries	<u>54,243</u>	<u>31,264</u>
Less: Accumulated depreciation	<u>100,535</u>	<u>58,979</u>
Furniture and equipment less accumulated depreciation	<u>47,857</u>	<u>40,378</u>
	<u>\$ 52,678</u>	<u>\$ 18,601</u>

SUPPLEMENTARY INFORMATION

Our examinations of the financial statements included in the preceding section of this report were directed to an expression of our opinion on those financial statements taken as a whole. The supplementary information included on pages 11 through 13 is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information has been subjected to the auditing procedures applied in the examination of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

Gamer, Bloom & Robinson, Chartered
Certified Public Accountants

Silver Spring, Maryland
February 16, 1983

ASSOCIATION OF RESEARCH LIBRARIES
GENERAL OPERATING FUND-SCHEDULES OF EXPENSES
(Modified Cash Basis)

	Year ended December 31,	
	<u>1982</u>	<u>1981</u>
Staff expenses		
Employee benefits	\$ 42,812	\$ 36,046
Salaries	183,777	161,040
Transition		4,578
Travel and entertainment	<u>12,566</u>	<u>13,482</u>
Total staff expenses	<u>239,155</u>	<u>215,146</u>
Administrative expenses		
Communications	8,195	6,673
Depreciation	4,300	2,009
Dues	5,985	2,737
Insurance	3,002	1,549
Periodicals and subscriptions	1,909	1,968
Professional fees	18,361	5,195
Rent	14,922	11,126
Stationary and office	<u>21,715</u>	<u>16,048</u>
Total administrative expenses	<u>78,389</u>	<u>47,305</u>
Programs and services expenses		
Funding for special programs -		
Microform	2,594	966
Office of Management Studies	75,000	55,000
Publications	<u>13,710</u>	<u>8,345</u>
Total programs and services expenses	<u>91,304</u>	<u>64,311</u>
ARL meetings and travel expenses		
ARL sponsored membership travel	1,842	1,225
Board meetings	5,869	3,974
Committees and task forces	14,837	5,526
Conferences	22,614	22,713
Executive committee meetings	3,392	668
Staff expenses	<u>5,677</u>	<u>1,705</u>
Total ARL meetings and travel expenses	<u>54,231</u>	<u>35,811</u>
	<u>\$ 463,079</u>	<u>\$ 362,573</u>

ASSOCIATION OF RESEARCH LIBRARIES
SPECIAL PROGRAMS

SCHEDULE OF REVENUE AND EXPENSES PAID AND CHANGES IN PROGRAM BALANCES
(with comparative totals for 1981)
(Modified Cash Basis)

	Center For Chinese Research Materials	Office Of Management Studies
Revenue	\$ 66,667	\$ 237,140
Grants		82,979
Sales of publications		
ARL support - transferred from		75,000
General Operating Fund		
Support from Chinese Center	139,665	
Revolving Fund		102,014
Management institutes		18,209
Interest income		1,029
Miscellaneous		
	<u>206,332</u>	<u>516,371</u>
Total revenue		
Expenses	26,801	
Allocated administrative expenses		
Consulting, computer and	2,920	8,670
sub-contractors expenses	1,471	1,708
Depreciation	18,883	30,785
Employee benefits		1,525
Miscellaneous	9,934	14,051
Office expenses	7,659	10,665
Payroll taxes	284	1,408
Periodicals and subscriptions	979	11,992
Postage		44,760
Printing	795	
Professional services	18,956	20,313
Rent and storage	105,966	214,764
Salaries	1,611	10,816
Telephone		16,240
Training (Net)	10,073	78,132
Travel		
	<u>206,332</u>	<u>465,829</u>
Total expenses		
Excess (deficiency) of revenue		50,542
collected over expenses paid		
		<u>166,436</u>
Program balance, beginning of year		
	<u>\$ -0-</u>	<u>\$ 216,978</u>
Program balance, end of year		

Microform	Microform Preservation	Conser	Brasenose Conference	Index Grant (Wilson)	Year ended December 31,	
					1982 Total	1981 Total
\$ 8,000	\$ 10,000	\$	\$	\$	\$ 321,807	\$ 380,400
2,594					82,979	69,851
					77,594	55,000
3,886			111		139,665	104,943
					102,014	82,541
					22,206	21,599
14,480	10,000		111		1,029	
					747,294	714,334
31,325	3,190				26,801	26,801
					46,105	48,679
2,032	181	546	14		3,179	1,152
					49,668	51,338
617	7				2,085	986
316					26,198	24,517
2,436	342				18,324	19,469
4,750					1,692	2,296
560	63				13,595	7,556
					45,076	36,597
2,443					795	
					42,047	34,849
44,479	3,783	546	14		325,480	327,364
					13,050	10,486
(29,999)	6,217	(546)	97		16,240	10,419
45,331		546	1,963	2,175	90,648	87,917
\$ 15,332	\$ 6,217	\$ -0-	\$ 2,060	\$ 2,175	720,983	690,426
					26,311	23,908
					216,451	192,543
					\$ 242,762	\$ 216,451

ASSOCIATION OF RESEARCH LIBRARIES

OFFICE OF MANAGEMENT STUDIES
SCHEDULE OF PROGRAMS
(Modified Cash Basis)

Year ended December 31, 1982

	Academic Library Program	General Electric	Meyer Grant	Preservation (New)
Revenue				
Grants	\$ 60,000	\$ 125,000	\$ 15,900	\$ 8,488
Sales of publications	82,979			
ARL support - transferred from General Operating Fund	75,000			
Management institutes	102,014			
Interest income	14,735	3,474		
Miscellaneous				
Total revenue	<u>334,728</u>	<u>128,474</u>	<u>15,900</u>	<u>8,488</u>
Expenses				
Consulting, computer and sub-contractors expenses	5,565	365		700
Depreciation	1,708			
Employee benefits	21,072	2,719	2,357	
Miscellaneous				
Office expenses	11,466	1,755		17
Payroll taxes	10,665			
Periodicals and subscriptions	1,404			
Postage	11,770	108		
Printing	27,609	3,393	1,168	3
Rent and storage	18,228	1,845		7,526
Salaries	166,866	19,798	9,689	
Telephone	10,052			
Training (Net)	16,240			79
Travel	70,173	1,448	287	
Total expenses	<u>372,818</u>	<u>31,431</u>	<u>13,501</u>	<u>8,325</u>
Excess (deficiency) of revenue collected over expenses paid	(38,090)	97,043	2,399	163
Program balance, beginning of year	<u>153,684</u>			
Program balance, end of year	<u>\$ 115,594</u>	<u>\$ 97,043</u>	<u>\$ 2,399</u>	<u>\$ 163</u>

<u>Preservation (Old)</u>	<u>Economics Of Research Libraries</u>	<u>Collection Assessment</u>	<u>United States Japan Friendship Commissions</u>	<u>Lilly Project</u>	<u>Spec Wilson</u>	<u>Total</u>
\$ 18,752	\$	\$ 9,000	\$	\$	\$	\$ 237,140 82,979
						75,000 102,014 18,209 1,029
<u>18,752</u>	<u></u>	<u>9,000</u>	<u>1,029</u>	<u></u>	<u></u>	<u>516,371</u>
1,400				640		8,670
2,787	649	632		569		1,708
313	1,525					30,785
	500					1,525
						14,051
						10,665
4						1,408
91					20	11,992
2,674	446				1,944	44,760
240						20,313
11,920	2,877	2,341		1,273		214,764
685						10,816
						16,240
<u>1,743</u>	<u>162</u>	<u>3,317</u>	<u></u>	<u>848</u>	<u>154</u>	<u>78,132</u>
<u>21,857</u>	<u>6,159</u>	<u>6,290</u>	<u></u>	<u>3,330</u>	<u>2,118</u>	<u>465,829</u>
(3,105)	(6,159)	2,710	1,029	(3,330)	(2,118)	50,542
<u>3,105</u>	<u>6,159</u>	<u>(1,160)</u>	<u>(1,029)</u>	<u>3,330</u>	<u>2,347</u>	<u>166,436</u>
<u>\$ -0-</u>	<u>\$ -0-</u>	<u>\$ 1,550</u>	<u>\$ -0-</u>	<u>\$ -0-</u>	<u>\$ 229</u>	<u>\$ 216,978</u>



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